

PROCEEDINGS
OF THE
AMERICAN SOCIETY
OF
CIVIL ENGINEERS
(INSTITUTED 1852)

VOL. XLIV—No. 1

JANUARY, 1918

Edited by the Secretary, under the direction of the Committee on Publications.

Reprints from this publication, which is copyrighted, may be made on condition that the full title of Paper, name of Author, page reference, and date of presentation to the Society, are given.

CONTENTS

Society Affairs	Pages 1 to 102.
Papers and Discussions.....	Pages 1 to 304.

NEW YORK 1918

Entered according to Act of Congress, in the year 1918, by the AMERICAN SOCIETY OF CIVIL ENGINEERS, in the office of the Librarian of Congress, at Washington.

American Society of Civil Engineers

OFFICERS FOR 1918

President, ARTHUR N. TALBOT

Vice-Presidents

Term expires January, 1919:

GEORGE W. KITTREDGE
GEORGE S. WEBSTER

Term expires January, 1920:

NELSON P. LEWIS
JOHN F. COLEMAN

Secretary, CHARLES WARREN HUNT

Treasurer, GEORGE W. TILLSON

Directors

Term expires January,
1919:

FREDERICK C. NOBLE
ALEX. C. HUMPHREYS
FREDERIC H. FAY
RICHARD KHUEN, JR.
JOHN W. ALVORD
EDWIN DURYEA

Term expires January,
1920:

ALFRED D. FLINN
LEWIS D. RIGHTS
WILLIAM R. HILL
ARTHUR P. DAVIS
W. L. DARLING
R. H. THOMSON

Term expires January,
1921:

GEORGE W. GOETHALS
ANDREW M. HUNT
SAMUEL T. WAGNER
EDWARD E. WALL
MILO S. KETCHUM
HARRY HAWGOOD

Past-Presidents, Members of the Board:

GEORGE F. SWAIN
HUNTER McDONALD

CHARLES D. MARX
CLEMENS HERSCHEL

GEORGE H. PEGRAM

Assistant Secretary, T. J. MCMINN

Standing Committees

(THE PRESIDENT OF THE SOCIETY IS *ex officio* MEMBER OF ALL COMMITTEES)

On Finance:

GEORGE W. KITTREDGE
ALEX. C. HUMPHREYS
GEORGE S. WEBSTER
FREDERIC H. FAY
NELSON P. LEWIS

On Publications:

LEWIS D. RIGHTS
FREDERICK C. NOBLE
ANDREW M. HUNT
JOHN F. COLEMAN
MILO S. KETCHUM

On Library:

ALFRED D. FLINN
LEWIS D. RIGHTS
SAMUEL T. WAGNER
RICHARD KHUEN, JR.
CHAS. WARREN HUNT

On Special Committees:

JOHN W. ALVORD
GEORGE W. TILLSON
EDWIN DURYEA

Special Committees

ON ENGINEERING EDUCATION: Desmond FitzGerald, Onward Bates, D. W. Mead.
TO CODIFY PRESENT PRACTICE ON THE BEARING VALUE OF SOILS FOR FOUNDATIONS, ETC.: Robert A. Cummings, Edwin Duryea, E. G. Haines, Allen Hazen, James C. Meem, Walter J. Douglas.

ON THE REGULATION OF WATER RIGHTS: F. H. Newell, W. C. Hoad, John H. Lewis.

TO REPORT ON STRESSES IN RAILROAD TRACK: A. N. Talbot, A. S. Baldwin, G. H. Bremner, John Brunner, W. J. Burton, Charles S. Churchill, W. C. Cushing, Robert W. Hunt, George W. Kittredge, Paul M. LaBach, C. G. E. Larsson, G. J. Ray, Albert F. Reichmann, H. R. Safford, F. E. Turneure, J. E. Willoughby.

The Reading Room of the Society is open from 9 A. M. to 10 P. M. every day, except Sundays, Fourth of July, Thanksgiving Day, and Christmas Day.

HEADQUARTERS OF THE SOCIETY—33 WEST THIRTY-NINTH STREET, NEW YORK.

TELEPHONE NUMBER.....4600 Vanderbilt.
CABLE ADDRESS....."Ceas, New York."

AMERICAN SOCIETY OF CIVIL ENGINEERS

INSTITUTED 1852

PROCEEDINGS

This Society is not responsible for any statement made or opinion expressed in its publications.

SOCIETY AFFAIRS

CONTENTS

	PAGE
Minutes of Meetings:	
Of the Society, December 19th, 1917, and January 2d, 1918.....	1
Society Items of Interest.....	3
Announcements:	
Hours during which the Reading Room is open.....	14
Future Meetings.....	14
Searches in the Library.....	14
Papers and Discussions.....	15
Local Associations of Members of the American Society of Civil Engineers.....	15
Privileges of Engineering Societies Extended to Members.....	21
Annual Reports:	
Of the Board of Direction.....	24
Of the Secretary.....	36
Of the Treasurer.....	39
Accessions to the Library of the United Engineering Society.....	40
Roll of Honor.....	44
Membership (Additions, Reinstatements, Resignations, Deaths).....	81
Recent Engineering Articles of Interest.....	86

MINUTES OF MEETINGS OF THE SOCIETY

December 19th, 1917.—The meeting was called to order at 8.30 p. m.; Director Alfred D. Flinn in the chair; Chas. Warren Hunt, Secretary; and present, also, 144 members and 22 guests.

A paper by George Perrine, M. Am. Soc. C. E., entitled "Construction Problems of the Manhattan-Bronx, and Lexington Avenue Subway Junction and Queensborough Tunnel Connections", was presented by the author and illustrated with lantern slides.

The paper was discussed by Messrs. John H. Myers, C. E. Carpenter, Robert Ridgway, C. V. V. Powers, Paul G. Brown, Robert A. Shailer, and H. H. Quimby.

The Secretary announced the following death:

HENRY AUGUSTUS HERRICK, of Butte, Mont., elected Member, May 7th, 1890; died December 14th, 1917.

Adjourned.

January 2d, 1918.—The meeting was called to order at 8.30 p. m.; Director Alfred D. Flinn in the chair; Chas. Warren Hunt, Secretary; and present, also, 64 members and 7 guests.

The minutes of the meetings of November 21st and December 5th, 1917, were approved as printed in *Proceedings* for December, 1917.

A paper by Benjamin F. Groat, M. Am. Soc. C. E., entitled "Ice Diversion, Hydraulic Models, and Hydraulic Similarity", was presented by the author and illustrated with lantern slides.

The paper was discussed by Messrs. C. E. Fowler, J. Waldo Smith, T. Kennard Thomson, and the author.

The Secretary announced that the Ordnance Department of the Army had established boards of officers in all the large manufacturing centers of the country for the purpose of recruiting and commissioning officers qualifying for ordnance service, and that the Board for New York and vicinity is now in session at the Headquarters of the American Society of Mechanical Engineers, 29 West 39th Street, New York City, where applicants would be furnished with the necessary forms and instructions.

The Secretary announced the following death:

JOSEPH HOBSON, of Hamilton, Ont., Canada, elected Member, February 5th, 1890; died, December 19th, 1917.

Adjourned.

MINUTES OF MEETINGS
OF THE SOCIETY

387528

SOCIETY ITEMS OF INTEREST**Report of Representatives of the American Society of Civil Engineers on the Naval Consulting Board**

TO THE BOARD OF DIRECTION

AMERICAN SOCIETY OF CIVIL ENGINEERS:

The representatives of the American Society of Civil Engineers on the Naval Consulting Board, appointed as members of that Board by the Secretary of the Navy, on nomination from the Board of Direction of the Society in July, 1915, feel that a brief report should be made at this time regarding the activities of the Naval Consulting Board, and that this report should be set forth in the records of the Society as indicating one phase of the participation of the Society in the present war program and activities.

The Naval Consulting Board is made up of two representatives of each of the following Societies:

American Aeronautical Society,

American Society of Automobile Engineers,

The Inventors' Guild,

American Chemical Society,

American Institute of Electrical Engineers,

American Society of Civil Engineers,

American Society of Mechanical Engineers,

American Institute of Mining Engineers,

American Electrochemical Society,

American Society of Aeronautic Engineers,

American Mathematical Society.

In addition to the above, Mr. Thos. A. Edison was appointed at large as a member of the Board by the Secretary of the Navy.

It is worthy of note that, in addition to the two direct representatives of the Society on the Board, four other members of the same are also members of the American Society of Civil Engineers.

The purpose and functions of the Board are indicated by the following quotation from its By-Laws, which were prepared under the direction of the Secretary of the Navy, and which have been approved by him.

"Purpose.—The purpose of this Board shall be to assist the United States Navy Department in any manner that it may, by supplying technical advice when called upon by any Bureau or Board of the Department, organized by law, or appointed by the Secretary of the Navy and to bring to the attention of the Navy Department through the proper channels such technical matters as it considers to be of value to the Government with suggestions and recommendations relating thereto.

"Functions.—The Board, in addition to the consideration of such matters as may be referred to it by the Navy Department, or any of its

Bureaus or Boards, may of its own initiative, or through the initiative of any of its Committees, take up any matters which it or such committees may deem advisable and in the interest of the Naval service formulate reports thereon and submit same through the proper channels to the Navy Department for its consideration."

The active work of the Board is carried out through twenty-one committees each dealing with problems in its own special field.

From the time of its formation until the severance of diplomatic relations with Germany, regular monthly meetings were held in New York City, at which committee reports were received and acted on. Since the latter date, regular meetings have been held in Washington every two weeks.

In addition to study of and reports on thousands of inventions and ideas, the Board has dealt with a number of broader problems of which the following are examples:

Recommendation for the establishment of a Naval Experimental Station and Laboratory. Arguments before the Naval Affairs Committee of the House of Representatives leading to the appropriation of funds for this purpose.

Initiation of and carrying out of an industrial census of the United States during the winter of 1915-1916, which was transferred to the Council of National Defence when that body was organized. In carrying out this work, the general membership of this Society, among others, participated.

Study of the possible domestic supply of nitrates and nitric acid, followed by recommendations which, together with other influences, ultimately led to an appropriation by Congress of \$20 000 000 for the purpose of ensuring a domestic supply of nitric acid to the Government such as would be adequate for its requirements in time of war.

An investigation into the future needs of the Navy for fuel oil, with special reference to available supply and oil lands withdrawn from entry by the Government for Naval use, with recommendations that have had an important influence on legislation which has been pending in relation to oil land reserves.

Many other investigations and reports have been made. The following quotations from the report of the Secretary of the Navy for 1917 show his appreciation of the Board's services:

"The Naval Consulting Board has been found very useful, not only in assisting in the solution of military problems, but in dealing with the immense flood of inventions and ideas submitted to the department from the country at large. It is true that a majority of these are not found of practical value, but it is a fact that practically all of them are submitted with the patriotic motive of helping win the war, and the department has felt that they are all entitled to serious and appreciative consideration. * * *

"During the year the work of this Board, organized and approved by Congress in 1915, has increased very materially in importance and volume, its meetings have been frequent and the work of its individual members has been such in some cases as to occupy almost their entire time in the service of the Government.

"Some time before the active entry of this country into war the board called a special meeting to which were invited some 50 of the leading scientists and industrial managers, whose special study fitted them to advise on the methods of meeting the submarine problem. Plans were immediately made to investigate every field to develop a means of preventing destruction of vessels and of defeating the U-boat. The investigation was divided according to the experience of the different members and associated scientists and with the co-operation and valuable assistance of the various manufacturing companies interested a highly developed system of teamwork has been attained and results accomplished not dreamed of at the beginning of the war.

"The services of the Board were offered to the Council of National Defense and accepted by that body for the investigation of all inventions submitted. Its services were also accepted by the War Department in an advisory capacity.

"Valuable assistance has been rendered merchant shipping by the board's activities. Through its initiative, counsel and work the United States Shipping Board formed its ship-protection committee, taking over the study of the protection of merchant ships, and to this committee was detailed one of the Consulting Board's most experienced members qualified in shipbuilding and with sea experience. In this field the board's work has resulted in materially reducing the shipping risk, with a consequent lowering of marine insurance rates.

"Not the least result of its work has been the stimulation of interest, in the problems brought up by the war, throughout the country by the general invitation to submit ideas for investigation. Early in the calendar year 1917 this interest manifested itself in the receipt of thousands of ideas weekly, and to care for this the department's connecting office has been greatly enlarged, the office of the board in New York has been organized on a working basis with a large force, and the whole movement has received the approval and hearty assistance of the great national engineering societies. The president of the board, Mr. Thomas A. Edison, has been giving his entire time to the work of the board in the service of his country, and has called to his assistance a capable staff who are working diligently upon naval problems.

"With war conditions increasing the need for labor and building materials, it was believed to be a wise policy to defer for a time the building of the new experimental and research laboratory. Such experiments as have been warranted have been made in private laboratories generously offered and at the Bureau of Standards. The need for this establishment, however, is more clearly shown than ever, and its support is urgently advised.

"The valuable results obtained by the work of this board are of too confidential a nature to make them the subject of a public document. The members have given freely of their time and scientific ability to the service of the Nation and have earned the gratitude of

all who know their unselfish and patriotic service. I wish to express my sense of obligation for the cheerful co-operation, wise counsel, loyal devotion, and personal sacrifice which have characterized the membership of the board of distinguished civilians who responded, long before war was declared, to the selective draft with all the enthusiasm and efficiency of youthful volunteers."

Much of the most valuable work of the board has been the contributions of its individual members to the development of various offensive and defensive devices which are playing an important part to-day, and which will play a still greater part during the coming year. Publicity cannot, for obvious reasons, be given to their work, but when, if ever, the inside history of the activities of the Board and its members is published, it will be realized that they have given freely, and at much personal sacrifice, to the country's service.

A. M. HUNT,
ALFRED CRAVEN.

JAN. 10TH, 1918.

The Catskill Water Supply Celebration, November 14th, 1917.

A meeting to signalize the completion of the Catskill Water Supply was held in the Engineering Societies Building, on the evening of November 14th, 1917, under the auspices of the United Engineering Society, the American Society of Civil Engineers, the American Institute of Mining Engineers, the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers, about 1 100 being present.

George H. Pegram, President of the American Society of Civil Engineers, presided, the Committee in charge of the meeting consisting of Chas. Warren Hunt, Chairman, Calvin W. Rice, Samuel Sheldon, and E. Gybbon Spilsbury.

In introducing the first speaker of the evening, the Hon. John Purroy Mitchel, Mayor of the City of New York, Mr. Pegram stated that, in his opinion, the completion of the Catskill Water Supply marked the greatest engineering achievement of our time.

Mr. Mitchel described briefly the first steps toward a new water supply for the City under Mayor McClellan, and the organization of the Board of Water Supply, paying tribute to its efficiency and ability, as shown in its selection of such men as J. Waldo Smith, Chief Engineer, Merritt H. Smith, Robert Ridgway, Carleton E. Davis (all Members, Am. Soc. C. E.), and others who held posts of responsibility under it, and making due acknowledgment in behalf of the City for the service rendered by them. Mr. Mitchel also stated that the splendid work of engineers, generally, for City, State, or Nation, had come to be greatly appreciated, mentioning especially the work of those who have

been engaged in the service of the City of New York during his administration and of those who had answered the call for service under the United States Government in the present crisis.

Mr. Pegram, after explaining the unavoidable absence of Gen. Goethals, who had expected to address the meeting, introduced Charles Strauss, President of the Board of Water Supply.

Mr. Strauss also eulogized the work of the engineers and men engaged on the new water supply, and stated that the two outstanding facts which make it a civic lesson, are its successful completion one year before the estimated time, and that the cost was about \$7 000 000 less than the original estimate.

Mr. Pegram then introduced Alfred D. Flinn, M. Am. Soc. C. E., Deputy Chief Engineer of the Board of Water Supply, who described, with the aid of lantern slides, the source of the Catskill Water Supply, the works for collecting the water and conducting it to the city, and some of the engineering problems involved.

Mr. J. Waldo Smith, when called on, spoke of the co-operation of the Commissioners and the loyalty and good-fellowship of the whole working force, as the chief factors in the successful prosecution of the work.

Engineering Council

A meeting of the Engineering Council was held on December 6th, 1917, in the Board Room of the American Society of Civil Engineers, Dr. I. N. Hollis, Chairman, presiding; and present, also, Messrs. Baker, Buck, Carle, Channing, Greene, Herschel, Humphreys, Hunt, Jacobus, Jennings, Moore, Swain, and Townley of the Council; also, by invitation, Messrs. George J. Foran and D. W. Brunton; also, Dr. William McClellan, Director of the Intercollegiate Intelligence Bureau; also, Mr. W. F. M. Goss, of a special committee of the American Society of Mechanical Engineers; also, a delegation of some fifteen members of the Society for the Promotion of Engineering Education.

The resignation of Mr. Calvert Townley, who had acted as Secretary since the organization of the Engineering Council, was accepted with expressions of appreciation for his efficient service.

The report of the Committee appointed to recommend a candidate for Permanent Secretary of the Engineering Council and also of the United Engineering Society and the Engineering Foundation, was presented, and Alfred D. Flinn, M. Am. Soc. C. E., was unanimously elected to the office, his term to begin January 1st, 1918.

A report of the Committee on Rules, providing for the admission of additional engineering and technical societies, was adopted.

The matter of the administration of the National Selective Draft, with respect to students in engineering schools, having been recommended to the consideration of the Engineering Council, the following resolution was adopted, and copies were ordered to be sent by telegram

and letter to the Hon. Newton D. Baker, Secretary of War, and to Gen. Enoch F. Crowder, Provost Marshal:

"Resolved, The Engineering Council, representing the American Society of Civil Engineers, The American Institute of Mining Engineers, the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers, recognizing the serious responsibility of the Engineer for the successful prosecution of the war, in the many branches of the National service where highly trained Engineers are required, urges the importance, as a war measure, of maintaining unimpaired the Engineering strength of the Nation, for the successful prosecution of military operations, and for the support of sustaining industries.

"Since Schools of Engineering are the principal sources from which trained Engineers may be drawn, the Engineering Council urges that in the administration of the selective draft the Government should maintain these Schools in full operation, and should take such steps as will enable qualified Engineering students to continue their studies to graduation, if possible, and, in any event, until necessity demands their call for active service.

"This recommendation is made for the sole purpose of insuring the continuous supply of trained Engineers for the future service of the Nation."

D. W. Brunton, Chairman of the War Committee of Technical Societies, Dr. William McClellan, Director of the Intercollegiate Intelligence Bureau, and George J. Foran, Chairman of the American Engineering Service, respectively addressed the meeting on the work of these committees.

Welcome of the American Society of Civil Engineers into the Fraternity of the Founder Societies

On December 7th, 1917, at a meeting held in the Auditorium of the Engineering Societies Building, under the auspices of the American Institute of Mining Engineers, the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers, the American Society of Civil Engineers was welcomed to the fraternity of the Founder Societies. At one o'clock on that day the President and Board of Direction of the Society were entertained at luncheon, and in the evening formal exercises were held.

Charles F. Rand, President of the United Engineering Society, presided. Gano Dunn, M. Am. Soc. C. E., representing the American Institute of Electrical Engineers, addressed the meeting. Ira N. Hollis, Past-President, American Society of Mechanical Engineers, spoke as a representative of that Society. Dr. Rossiter W. Raymond, Secretary Emeritus of the American Institute of Mining Engineers, addressed the meeting as a representative Mining Engineer. William L. Saunders, M. Am. Soc. C. E., was introduced by the chairman as not speaking for any particular Society, but for the Profession gen-

erally. George H. Pegram, President, Am. Soc. C. E., responded to the cordial words of welcome in behalf of this Society, and introduced George F. Swain, Past-President, Am. Soc. C. E., who spoke from the standpoint of the out-of-town members. Chas. Warren Hunt, Secretary, Am. Soc. C. E., was called upon by Mr. Rand to say a few words, and, as Vice-President of the United Engineering Society, to adjourn the meeting.

The new quarters of the Society were open for inspection, and were visited by a great many members of the Society and others.

Correspondence Relative to the Donation of the Use of the Society House to the United States Food Administration

The following correspondence, relative to the donation by the Society of the use of its House to the United States Food Administration, is published here for the information of the membership.

"DECEMBER 17, 1917.

"HERBERT HOOVER, ESQ.

"United States Food Administrator

"Washington, D. C.

"DEAR SIR:—I am in receipt of your communications of December 1st and 12th, 1917, with regard to your acceptance of the offer of this Society to place the building which it owns, No. 220 West Fifty-seventh Street, New York City, at the disposal of the U. S. Food Administration.

"I understand that the building is to be used as headquarters for the activities of the Federal Food Board of the State of New York, and that Mr. Arthur Williams represents both the United States Food Administration and State Board, and is authorized to act for either in this matter.

"The Society is very glad to donate the use of this building to the Government for this very essential work, under as few conditions as possible. These conditions are as follows:

"(1) That all expenses incident to the occupancy of the building by the Food Administration, including Janitor and other attendants, heat, light, and water, insurance, and taxes, if any, will be assumed and paid by the Food Administration.

"(2) That the Janitor, or other person employed by the Food Administration to take care of the property, shall be satisfactory to, and under the control of, this Society so far as its interests are concerned, although paid by the Food Administration.

"(3) That at any time the American Society of Civil Engineers may desire to take the building over, it will be promptly vacated by the Food Administration. It is understood that this is intended merely as a safeguard to the Society in the event of its securing a satisfactory offer for the property, either for sale or for lease, and that ten days will be deemed a sufficient notice.

"(4) That upon the termination for any cause of the occupancy of the building by the Food Administration it will be turned over to the owners in as good condition as when their occupancy began.

"(5) That no alteration of the building, or any of its appurtenances, shall be made without written consent of the American Society of Civil Engineers.

"Permit me to say that it is the desire of this Society to do everything possible to aid your Board, and it will give the undersigned pleasure at any time to do everything in his power to carry out this desire.

"Yours respectfully,

"CHAS. WARREN HUNT,
"Secretary."

"WASHINGTON, D. C.

"December 19, 1917.

"DR. CHARLES WARREN HUNT, *Secretary*,
"American Society of Civil Engineers,
"33 West 39th Street,
"New York City.

"Dear Dr. Hunt:—Many thanks for your personal and formal letters of December 17th.

"I note the conditions set forth in your formal letter regarding the donation of your building, No. 220 West 57th Street, to the New York Federal Food Board and herewith accept these conditions on behalf of the United States Food Administration. I am returning to you carbon copy of your letter of December 17th, to which I refer.

"Let me again express to you and the Society my keen appreciation of the generosity which you show in the donation to us of your building. It is additional evidence of the splendid generous support contributed by engineers in this war. I am sure that the use of this building will benefit greatly the work of the Federal Food Board.

"With kind regard, I am

"Yours faithfully,

"HERBERT HOOVER."

Conference of Technical Societies and Technical War Committees

A conference of the representatives of the technical societies and the technical war committees of the United States was held, at the call of Mr. Ambrose Swasey, at the Bureau of Standards, Washington, D. C., on October 26th, 1917.

There were present, Col. J. J. Carty, in the chair, representing the Executive Committee of the National Research Council, Calvin W. Rice, Secretary, representing the United Engineering Society; and present, also, Messrs. Chas. Warren Hunt, representing the United Engineering Society and the Engineering Foundation; H. C. Dickinson, representing the Bureau of Standards and the American Society of Refrigerating Engineers; Gano Dunn and S. W. Stratton, representing the Engineering Committee of the National Research Council; M. I. Pupa and W. F. Durand, representing the National Advisory Committee for Aeronautics; L. T. Robinson and N. A. Carle, representing the American Institute of Electrical Engineers; Ambrose Swasey and John H. Barr, representing the American Society of Mechanical Engineers; George

C. Stone, representing the American Institute of Mining Engineers; S. S. Voorhees, representing the American Society for Testing Materials; F. C. Diffin and George K. Burges, representing the International Aircraft Standards Board; Arthur A. Noyes, representing the Executive Committee of the National Research Council; W. R. Addicks and Alfred E. Forstall, representing the American Gas Institute; Comfort A. Adams, representing the General Engineering Committee of the Advisory Commission of the Council of National Defence and the American Engineering Standard Organization Committee; William McClellan, representing the Intercollegiate Intelligence Bureau and the Professional Service Bureau; D. W. Brunton, representing the American Institute of Mining Engineers and the War Committee of Technical Societies of the Engineering Council; R. A. Millikan, representing the National Research Council; George J. Foran, representing the American Society of Mechanical Engineers and the American Engineering Service Committee of the Engineering Council; John W. Lieb, representing the National Committee on Gas and Electric Service of the Council of National Defence, and the President of the Association of Edison Illuminating Companies; L. B. Stillwell and F. A. Molitor, representing the American Institute of Consulting Engineers; J. V. Davies and Alfred D. Flinn, representing the American Society of Civil Engineers; Walter F. Wells, representing the National Electric Light Association; William B. Stout and Coker F. Clarkson, representing the Society of Automotive Engineers; Henry Torrance, representing the American Society of Refrigerating Engineers; Charles Whiting Baker and H. W. Buck, representing the Engineering Council; Henry E. Crampton and Charles J. Tilden, representing the Engineering Committee of the Advisory Commission of the Council of National Defence; and James Boyle, representing the War Committee of Technical Societies of the Engineering Council.

A general statement of the activities of the Research Council, Engineering Committee of the Advisory Commission of the Council of National Defence, National Committee of Gas and Electric Service, Engineering Council, Aircraft Production Board, and Aircraft Standardization, was presented by Mr. Gano Dunn.

On motion, duly seconded, it was decided to call on the representatives of each organization present to state the general nature of its work and its official or unofficial connection with the Government.

Professor Comfort A. Adams, Chairman of the American Engineering Standards Organization Committee, reported the formation, at the request of the Navy Department, of a special committee to advise as to specifications for insulated wires for battleships.

The formation of the Engineering Council and its purpose to represent all engineering societies in matters of common interest, were explained by Messrs. H. W. Buck and Charles Whiting Baker.

Mr. George J. Foran, representing the American Engineering Service Committee of the Engineering Council, stated that the Committee had been appointed by the Engineering Council, and that it had prepared and cross-referenced a catalogue of the membership of three engineering societies, with the qualifications of each member.

The War Committee of Technical Societies, as reported by Mr. D. W. Brunton, was appointed by the Engineering Council to encourage and consider inventions presented by members of engineering societies and by others.

J. W. Lieb, M. Am. Soc. C. E., reported on the activities of the Committee on Gas and Electric Service, stating that it had furnished experts and expert advice on inspection for the Naval Advisory Board, the Priority Board, the Fuel Administrator, the Quartermaster Department, the Provost Marshal General, the Aircraft Production Board, the Emergency Fleet Corporation, and the Signal Corps.

For the General Engineering Committee of the Advisory Commission of the Council of National Defence, Professor Adams stated that the Committee was chiefly occupied with the development of anchor chain manufacture and the application of electrical spot welding to ship-building as a substitute for riveting.

Dr. William McClellan reported that the Intercollegiate Intelligence Bureau, representing 200 colleges in the United States, receives calls for men and has distributed men to adjutants in the various schools. In addition, in co-operation with the Engineering Council, the Bureau had formed the Professional Service Bureau to furnish specially trained men for all kinds of professional service. It is also interested in the Public Service Reserve attached to the U. S. Department of Labor, to provide men for war services of every kind.

Mr. F. C. Diffin, for the International Aircraft Standards Board, reported that it was composed of representatives of Great Britain, France, Italy, and the United States, to prepare specifications for standards of raw materials in the aircraft industry and of aircraft details. Mr. Diffin pointed out the need of giving publicity to the work of this Board.

For the Aeronautical Committee (the Executive Committee of the Advisory Commission on Aeronautics) of the National Research Council, Dr. W. F. Durand, reported that it is the duty of this Committee to supervise and direct the scientific study of problems of flight, with a view to their practical solution, etc., and to direct and conduct laboratory researches and experiments in aeronautics. Research problems relative to aerodynamics, materials of aircraft construction, power plants, and aircraft armament, equipment, etc., are being solved under the direction of this Committee, which also acts as an Advisory Board on inventions pertaining to aircraft, and makes recommendations to the Government Bureaus on those submitted. The Committee is also en-

deavoring to secure uniformity of patents, insurance for aviators, aircraft insurance, and the question of aerial mail routes.

Mr. C. F. Clarkson reported for the Society of Automotive Engineers that it was engaged on the standardization and design of Liberty aeronautical engines, military trucks, motor cycles, tractors for farm work, and military tractors.

On motion, duly seconded, it was decided that a Committee on Civilian Engineering Activities be appointed to confer with the Engineering Council, Councils of Government, and bodies of other civilian organizations, with a view to rendering most effective the work of civilian engineers.

On motion, duly seconded, a vote of thanks was extended to Dr. Stratton, of the Bureau of Standards, for assistance given, and a rising vote of thanks was extended to Mr. Swasey for calling the conference.

ANNOUNCEMENTS

The Reading Room of the Society is open from 9 A. M. to 10 P. M., every day, except Sundays, Fourth of July, Thanksgiving Day, and Christmas Day.

FUTURE MEETINGS

February 6th, 1918.—8.30 P. M.—This will be a regular business meeting. A paper by F. W. Gardiner and S. Johannesson, Members, Am. Soc. C. E., entitled, "Manhattan Elevated Railway Improvements", will be presented for discussion.

This paper was printed in *Proceedings* for December, 1917.

February 20th, 1918.—8.30 P. M.—A meeting will be held on this evening as usual, and announcement of the speaker and subject will be made later.

March 6th, 1918.—8.30 P. M.—A regular business meeting will be held, and a paper by Floyd A. Nagler, Jun. Am. Soc. C. E., entitled "Verification of the Bazin Weir Formula by Hydro-Chemical Gaugings", will be presented for discussion.

This paper is printed in this number of *Proceedings*.

SEARCHES IN THE LIBRARY

In January, 1902, the Secretary was authorized to make searches in the Library, upon request, and to charge therefor the actual cost to the Society for the extra work required. Since that time many searches have been made, and bibliographies and other information on special subjects furnished.

The resulting satisfaction, to the members who have made use of the resources of the Society in this manner, has been expressed frequently, and leaves little doubt that if it were generally known to the membership that such work would be undertaken, many would avail themselves of it.

The cost is trifling compared with the value of the time of an engineer who looks up such matters himself, and the work can be performed quite as well, and much more quickly, by persons familiar with the Library.

In asking that such work be undertaken, members should specify clearly the subject to be covered, and whether references to general books only are desired, or whether a complete bibliography, involving search through periodical literature, is desired.

It sometimes happens that references are found which are not readily accessible to the person for whom the search is made. In that case the material may be reproduced by photography, and this can be done for members at the cost of the work to the Society, which is small. This method is particularly useful when there are drawings or figures in the text which would be very expensive to reproduce by hand.

A list of 989 bibliographies made in the Library, giving the cost of each, was published in Vol. LXXX of *Transactions*.

Since October 1st, 1916, the Library of the American Society of Civil Engineers has ceased to exist, as such, having been merged with the Libraries of the Mining, Mechanical, and Electrical Engineers, and become a part of the Library of the United Engineering Society. There were 67 000 accessions, which were not duplicates, turned over to that Library.

Hereafter, therefore, requests for searches should be addressed to the Librarian, Engineering Societies Library, 29 West 39th Street, New York City.

PAPERS AND DISCUSSIONS

Members and others who take part in the oral discussions of the papers presented are urged to revise their remarks promptly. Written communications from those who cannot attend the meetings should be sent in at the earliest possible date after the issue of a paper in *Proceedings*.

All papers accepted by the Publication Committee are classified by the Committee with respect to their availability for discussion at meetings.

Papers which, from their general nature, appear to be of a character suitable for oral discussion will be published as heretofore in *Proceedings*, and set down for presentation to a future meeting of the Society, and on these oral discussions, as well as written communications, will be solicited.

All papers which do not come under this heading, that is to say, those which from their mathematical or technical nature, in the opinion of the Committee, are not adapted to oral discussion, will not be scheduled for presentation to any meeting. Such papers will be published in *Proceedings* in the same manner as those which are to be presented at meetings, but written discussions only will be requested for subsequent publication in *Proceedings* and with the paper in the volumes of *Transactions*.

The Board of Direction has adopted rules for the preparation and presentation of papers, which will be found on page 35 of the Year Book for 1917.

LOCAL ASSOCIATIONS OF MEMBERS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS

San Francisco Association, Organized 1905.

Jerome Newman, President; Nathan A. Bowers, Secretary-Treasurer, 502 Rialto Building, San Francisco, Cal.

The San Francisco Association of Members of the American Society of Civil Engineers holds regular bi-monthly meetings, with banquet,

and weekly informal luncheons. The former are held at 6 P. M., at the Palace Hotel, on the third Tuesday of February, April, June, August, October, and December, the last being the Annual Meeting of the Association.

Informal luncheons are held at noon, every Wednesday, at the Engineers' Club, 57 Post Street, where special tables are reserved for members and guests of the Association.

The by-laws of the Association provide for the extension of hospitality to any member of the Society who may be temporarily in San Francisco, and any such member will be gladly welcomed as a guest.

Colorado Association, Organized 1908.

Robert Follansbee, President; L. R. Hinman, Secretary-Treasurer, 1400 West Colfax Avenue, Denver, Colo.

The meetings of the Colorado Association of Members of the American Society of Civil Engineers (Denver, Colo.) are held on the second Saturday of each month, except July and August. The hour and place of meeting are not fixed, but this information will be furnished on application to the Secretary. The meetings are usually preceded by an informal dinner. Members of the American Society of Civil Engineers will be welcomed at these meetings.

Weekly luncheons are held on Wednesdays at 12.30 P. M., at Daniel's and Fisher's.

Visiting members are urged to attend the meetings and luncheons.

(Abstract of Minutes of Meeting)

November 10th, 1917.—The meeting was called to order at the Denver Athletic Club; President Follansbee in the chair; L. R. Hinman, Secretary; and present, also, 12 members.

The minutes of the meetings of September 8th and October 6th, 1917, were read and approved.

A letter from the Denver Motor Club, together with a report from the Joint Committee appointed by the Motor Club, the Association, and other organizations, to investigate the condition of the roads surrounding Denver, was read by the Secretary, and announcement was made that Mr. Hinman who had been appointed to represent the Association on the Joint Committee had resigned and that Mr. Thomas W. Jaycox had agreed to take his place. The work of the Joint Committee was outlined by Mr. Jaycox, and, on motion, duly seconded, the Secretary was authorized to write to Mr. Bishop, who represented the Motor Club and who was instrumental in organizing the Joint Committee, thanking him for asking the Association to participate in the work.

A letter from Chas. Warren Hunt, Secretary of the Society, was read, calling the attention of the Association to a resolution passed by the Executive Committee of the Board of Direction relative to the War Revenue Act of 1917 as it affects engineers and professional men. On motion, duly seconded, the matter was referred to a committee of three, Messrs. M. S. Ketchum, Chairman, Charles W. Comstock and E. F. Vincent, with instructions to report at the December meeting.

The Secretary read a letter from the Connecticut Society of Civil Engineers relative to the establishment of Student Branches of the

Society. On motion, duly seconded, the matter was referred to Prof. Ketchum, as a committee of one, with instructions to report at the December meeting.

A paper by Mr. James Munn, Engineer of the United States Reclamation Service, entitled "The Construction of the Arrow Rock Dam", was read by the author, who illustrated his remarks with lantern slides. After the address, the subject was informally discussed by those present.

The appointment of Messrs. Thomas W. Jaycox, Chairman, A. N. Miller, and T. H. Olds, as the Entertainment Committee for the January meeting, was announced.

Adjourned.

Atlanta Association, Organized 1912.

B. M. Hall, President; W. C. Spiker, Secretary-Treasurer, 1408 Candler Building, Atlanta, Ga.

(Abstract of Minutes of Meeting)

August 31st, 1917.—The meeting was called to order at the Hotel Ansley; Vice-President Kriegshaber in the chair; T. P. Branch, Secretary; and present, also, 7 members.

The following officers were elected: President, B. M. Hall; Vice-President, T. P. Branch; and Secretary-Treasurer, W. C. Spiker.

On motion, duly seconded, Messrs. A. V. Gude, E. K. Large, and B. M. Hall were appointed a committee to call on Col. Brown, of the 103d Engineers, at Camp Gordon, and secure the names of all members of the Society at the camp, in order that such members could be invited to be present at the meetings and luncheons of the Association.

The President appointed Messrs. V. H. Kriegshaber and T. P. Branch as representatives of the Association on the Affiliated Technical Society Board.

Adjourned.

Baltimore Association, Organized 1914.

Mason D. Pratt, President; Charles J. Tilden, Secretary-Treasurer, The Johns Hopkins University, Baltimore, Md.

Cleveland Association, Organized 1914.

W. J. Watson, President; George H. Tinker, Secretary-Treasurer, 516 Columbia Building, Cleveland, Ohio.

Detroit Association, Organized 1916.

T. A. Leisen, President; Clarence W. Hubbell, Secretary, 2348 Penobscot Building, Detroit, Mich.

The regular meetings of the Association are held on the second Friday of December, April, and October, the last being the Annual Meeting.

District of Columbia Association, Organized 1916.

A. P. Davis, President; John C. Hoyt, Secretary-Treasurer, U. S. Geological Survey, Washington, D. C.

Duluth Association, Organized 1917.

F. E. House, President; Walter G. Zimmermann, Secretary, Wolvin Building, Duluth, Minn.

The regular meetings of the Association are held at noon on the third Monday of each month (usually at the Kitchi Gamma Club), with luncheon, followed by a short business session and the reading of papers. Visiting members of the American Society of Civil Engineers can secure from the Secretary definite information relating to the meetings, at which they will be welcomed. The Annual Meeting is held on the third Monday in May.

(Abstract of Minutes of Meeting)

December 17th, 1917.—The meeting was called to order; Vice-President John H. Darling in the chair; H. C. Ash, acting as Secretary; and present, also, 17 members and 1 guest.

Mr. M. B. Benson, of the Lake Superior Electrical Company, addressed the meeting, describing the electric telemotor, a device for controlling the rudder of a ship from the pilot-house by electricity, the recording electric compass for recording the continuous changes of a ship's course, and the electric signal whistle combined with flashlight signals.

Adjourned.

Illinois Association, Organized 1916.

A. S. Baldwin, President; Edgar S. Nethercut, Secretary-Treasurer, 705 Michigan Ave., Evanston, Ill.

The regular meetings of the Association are held on the second Monday of March, June, September, and December, the last being the Annual Meeting. The hour and place of meeting are not fixed, but this information will be furnished on application to the Secretary.

Louisiana Association, Organized 1914.

W. B. Gregory, President; Charles W. Okey, Secretary, Tulane University, New Orleans, La.

The regular meetings of the Association are held at The Cabildo, New Orleans, La., on the first Monday of January, April, July, and October.

Nebraska Association, Organized 1917.

Frank T. Darrow, President; Homer V. Knouse, Secretary-Treasurer, 115 City Hall, Omaha, Nebr.

Regular meetings of the Association are held on the first Saturday of each month, except July and August, and at such places as may be appointed from time to time by the Executive Committee. The Annual Meeting is held in Lincoln, Nebr., on the second Friday in January.

An "Engineers' Round Table" is reserved daily for luncheon, at Courtenay's Restaurant, 17th and Douglas Streets, Omaha, to which all engineers are invited. Visiting members of the Society are especially urged to communicate with the Secretary when in the city.

(Abstract of Minutes of Meeting)

December 8th, 1917.—Following an inspection trip to the Minne Lusa Pumping Station and the Laboratory and Alum Plant of the Metropolitan Water District of the City of Omaha, the meeting was called to order at the Laboratory at 8.00 P. M.; President Darrow in the chair; Homer V. Knouse, Secretary; and present, also, 21 members and guests.

The minutes of the meeting of November 10th, 1917, were read and approved.

An informal description of the system of the Metropolitan Water District, with particular reference to the Minne Lusa Pumping Station, was presented by George T. Prince, M. Am. Soc. C. E.

Mr. Andrew Jacobsen, Chief Chemist of the Water District, described the Alum Manufacturing Plant and the effect on operating costs of the various processes substituted, since Alum Cake had been in use, for commercial sulphate of alumina. Mr. Jacobsen also referred to the use of scrap iron with the alum solution to produce a basic coagulant.

The resolution adopted by the Executive Committee of the Board of Direction of the Society, relative to the War Revenue Act of 1917, was discussed by Messrs. Holdrege, Campen, Dobson, Mickey, and others.

Nominations for officers for 1918 were made as follows: For President, Messrs. Prince and Campen; for Senior Vice-President, Messrs. Holdrege and Mickey; for Junior Vice-President, Messrs. Hershey and Bruce; and for Secretary-Treasurer, Homer V. Knouse.

On motion, duly seconded, it was decided that the next meeting of the Association should be devoted to matters pertaining to the War, with particular reference to the part of the Engineer therein. Messrs. Mickey and Dobson were appointed a committee to take charge of the meeting.

Adjourned.

Northwestern Association, Organized 1914.

George L. Wilson, President; Ralph D. Thomas, Secretary, 508 South First Street, Minneapolis, Minn.

Philadelphia Association, Organized 1913.

Henry H. Quimby, President; C. W. Thorn, Secretary, 1313 South Broad Street, Philadelphia, Pa.

The regular meetings of the Association are held at the Engineers' Club of Philadelphia, 1317 Spruce Street, on the First Monday in January, April, and October, the last being the Annual Meeting.

Portland, Ore., Association, Organized 1913.

J. P. Newell, President; J. A. Currey, Secretary, 194 North 13th Street, Portland, Ore.

St. Louis Association, Organized 1888 (1914).

J. A. Ockerson, President; C. M. Daily, Secretary-Treasurer, 34 East Grand Avenue, St. Louis, Mo.

The Annual Meeting of the Association is held on the fourth Monday in November in the Auditorium of the Engineers Club of St. Louis. The time and place of other meetings are not fixed, but this information will be furnished on application to the Secretary.

San Diego Association, Organized 1915.

N. B. Kellogg, President; J. R. Comly, Secretary-Treasurer, 4105 Falcon Street, San Diego, Cal.

(Abstract of Minutes of Meeting)

December 14th, 1917.—The Annual Meeting was called to order; President W. J. Gough in the chair; J. R. Comly, Secretary.

The following officers were elected for 1918: President, N. B. Kellogg; Vice-President, George Cromwell; and Secretary-Treasurer, J. R. Comly.

Discussion of the resolution of the Executive Committee of the Board of Direction of the Society, relative to the War Revenue Act, was postponed, to be taken up at a special meeting of the Association.

The following members of the Association were reported as having received commissions in the Engineer Officers' Reserve Corps: F. M. Billings, J. F. Covert, J. R. Comly, George Cromwell, W. J. Gough, L. R. Johnson, and W. S. Post.

Mr. Cromwell tendered his resignation as a member of the Association, but action thereon was postponed.

Adjourned.

Seattle Association, Organized 1913.

Joseph Jacobs, President; Carl H. Reeves, Secretary-Treasurer, 444 Henry Building, Seattle, Wash.

The regular meetings of the Association are held at 12.15 P. M., on the last Monday of each month, at The Frye Hotel.

Southern California Association, Organized 1914.

H. Hawgood, President; H. W. Dennis, Secretary, 329 San Fernando Building, Los Angeles, Cal.

The Southern California Association of Members of the American Society of Civil Engineers (Los Angeles, Cal.) holds regular bi-monthly meetings with banquet, at Hotel Clark, on the second Wednesday of February, April, June, August, October, and December, the last being the Annual Meeting of the Association.

Informal luncheons are held at 12.15 P. M. every Wednesday, and the place of meeting may be ascertained from the Secretary.

The by-laws of the Association provide for the extension of hospitality to any member of the Society who may be temporarily in Los Angeles, and any such member will be gladly welcomed as a guest at any of the meetings or luncheons.

Spokane Association, Organized 1914.

J. C. Ralston, President; B. J. Garnett, Secretary, City Hall, Spokane, Wash.

The regular meetings of the Association are held on the second Friday of each month, except July and August. The hour and place

of meeting are not fixed, but this information will be furnished on application to the Secretary.

Visiting members are invited to attend the meetings and luncheons.

Texas Association, Organized 1913.

John B. Hawley, President; J. F. Witt, Secretary, Dallas, Tex.

Utah Association, Organized 1916.

George L. Swendsen, President; H. S. Kleinschmidt, Secretary-Treasurer, 306 Dooly Building, Salt Lake City, Utah.

The Annual Meeting of the Association is held on the first Wednesday in April. The time of other meetings is not fixed, but this information will be furnished on application to the Secretary.

**PRIVILEGES OF ENGINEERING SOCIETIES
EXTENDED TO MEMBERS OF THE
AMERICAN SOCIETY OF CIVIL ENGINEERS**

Members of the American Society of Civil Engineers will be welcomed by the following Engineering Societies, both to the use of their Reading Rooms, and at all meetings:

American Institute of Electrical Engineers, 25 West Thirty-ninth Street, New York City.

American Institute of Mining Engineers, 25 West Thirty-ninth Street, New York City.

American Society of Mechanical Engineers, 25 West Thirty-ninth Street, New York City.

Associação dos Engenheiros Civis Portuguezes, Lisbon, Portugal.

Australasian Institute of Mining Engineers, Melbourne, Victoria, Australia.

Boston Society of Civil Engineers, 715 Tremont Temple, Boston, Mass.

Brooklyn Engineers' Club, 117 Remsen Street, Brooklyn, N. Y.

Canadian Society of Civil Engineers, 176 Mansfield Street, Montreal, Que., Canada.

Civil Engineers' Society of St. Paul, Public Library, St. Paul, Minn.

Cleveland Engineering Society, Chamber of Commerce Building, Cleveland, Ohio.

Cleveland Institute of Engineers, Middlesbrough, England.

Dansk Ingeniorforening, Amaliegade 38, Copenhagen, Denmark.

Detroit Engineering Society, 46 Grand River Avenue, West, Detroit, Mich.

Engineering Association of Nashville, Commercial Club Building, Nashville, Tenn.

Engineering Societies Club of Hawaii, E. F. Cykler, Secretary, Honolulu, Hawaii.

- Engineers and Architects Club of Louisville**, 1412 Starks Building, Louisville, Ky.
- Engineers' Club of Baltimore**, 6 West Eager Street, Baltimore, Md.
- Engineers' Club of Kansas City**, E. B. Murray, Secretary, 920 Walnut Street, Kansas City, Mo.
- Engineers' Club of Minneapolis**, 17 South Sixth Street, Minneapolis, Minn.
- Engineers' Club of Philadelphia**, 1317 Spruce Street, Philadelphia, Pa.
- Engineers' Club of St. Louis**, 3817 Olive Street, St. Louis, Mo.
- Engineers' Club of Toronto**, 96 King Street, West, Toronto, Ont., Canada.
- Engineers' Club of Trenton**, Trent Theatre Building, 12 North Warren Street, Trenton, N. J.
- Engineers' Society of Northeastern Pennsylvania**, 415 Washington Avenue, Scranton, Pa.
- Engineers' Society of Pennsylvania**, 31 South Front Street, Harrisburg, Pa.
- Engineers' Society of Western Pennsylvania**, 568 Union Arcade Building, Pittsburgh, Pa.
- Florida Engineering Society**, J. R. Benton, Secretary, Gainesville, Fla.
- Institute of Marine Engineers**, The Minories, Tower Hill, London, E., England.
- Institution of Civil Engineers**, Great George Street, Westminster, S. W., London, England.
- Institution of Engineers of the River Plate**, Calle 25 de Mayo 195, Buenos Aires, Argentine Republic.
- Institution of Naval Architects**, 5 Adelphi Terrace, London, W. C., England.
- Junior Institution of Engineers**, 39 Victoria Street, Westminster, S. W., London, England.
- Koninklijk Instituut van Ingenieurs**, The Hague, The Netherlands.
- Louisiana Engineering Society**, State Museum Building, Chartres and St. Ann Streets, New Orleans, La.
- Memphis Engineers' Club**, Memphis, Tenn.
- Midland Institute of Mining, Civil and Mechanical Engineers**, Sheffield, England.
- Montana Society of Engineers**, Butte, Mont.
- North of England Institute of Mining and Mechanical Engineers**, Newcastle-upon-Tyne, England.
- Oregon Society of Civil Engineers**, Portland, Ore.
- Pacific Northwest Society of Engineers**, 803 Central Building, Seattle, Wash.
- Rochester Engineering Society**, Rochester, N. Y.
- Sociedad Colombiana de Ingenieros**, Bogota, Colombia.

- Sociedad de Ingenieros del Peru**, Lima, Peru.
- Societe des Ingenieurs Civils de France**, 19 rue Blanche, Paris, France.
- Society of Engineers**, 17 Victoria Street, Westminster, S. W., London, England.
- Southwestern Society of Engineers**, C. E. Barglebaugh, Secretary, 703 First National Bank Building, El Paso, Tex.
- Svenska Teknologforeningen**, Brunkebergstorg 18, Stockholm, Sweden.
- Tekniske Forening**, Vestre Boulevard 18-1, Copenhagen, Denmark.
- Vermont Society of Engineers**, George A. Reed, Secretary, Montpelier, Vt.
- Western Society of Engineers**, 1735 Monadnock Block, Chicago, Ill.

ANNUAL REPORT OF THE BOARD OF DIRECTION FOR THE YEAR ENDING DECEMBER 31st, 1917.

In compliance with the Constitution, the Board of Direction presents its report for the year ending December 31st, 1917.

MEMBERSHIP

The changes in membership are shown in the following table:

	JAN. 1ST, 1917.			JAN. 1ST, 1918.			LOSSES.			ADDI- TIONS.		TOTALS.			
	Resident.	Non-Resident.	Total.	Resident.	Non-Resident.	Total.	Transfer.	Resignation.	Dropped.	Death.	Transfer.	Election.	Loss.	Gain.	Increase.
Honorary Members.....		4	4		3	3				1			1		\$1
Corresponding Members.....	681	2 833	3 514	711	2 946	3 657		7	17	44	*126	†85	68	211	143
Associate Members.....	625	3 142	3 767	633	3 467	4 100	126	32	37	11	†123	†416	206	539	333
Associates.....	66	102	168	58	107	165	2	2	1	3		†5	8	5	\$3
Juniors.....	132	593	725	111	542	653	121	10	43			**102	174	102	\$72
Fellows.....	5	8	13	4	7	11				2			2		\$2
Totals.....	1 509	6 683	8 192	1 517	7 073	8 590	249	51	98	61	249	608	459	857	398

* 126 Associate Members.

† 2 Associates, 121 Juniors.

‡ 2 Reinstatements.

|| 4 Reinstatements.

¶ 1 Reinstatement.

** 1 Reinstatement.

§ Decrease.

The net increase in membership for the year was 398; total number of applications received 956: 693 for admission and 263 for transfer.

The losses by death during the year number 61 and are as follows:

Honorary Members (1): William Douglas Pickett.

Members (44): John Ferris Alden, Daniel Marshall Andrews, William Harry Arnold, William Sinclair Bacot, William Henry Baldwin, Arthur Beardsley, Van Brunt Bergen, Daniel Wheeler Bowman, John Griffiths Brown, Hiram Martin Chittenden, Otis Francis Clapp, Elmer Ellsworth Colby, Lyman Edgar Cooley, Charles Lee Crandall, Andrew Chase Cunningham, Joseph Phineas Davis, Edmund Hazen Drury, Richard Evans, Frank Firmstone, Harry Madera Gould, James Walter Grimshaw, William Oswald Henderer, Henry Augustus Herrick, Joseph Hobson, William Henry Hunter, James Edgar Jenkins, William Stone Johnson, Walter Katté, Eugene Castner Lewis, Franklin Buchanan Locke, Alexander William MacCallum, Thomas Chalmers McCollom, William Walter Marr, Sir Hiram Stevens Maxim, Harvey

Cooper Miller, Stanley Alfred Miller, David Simson, Richard Edward Speakman, David Wendel Spence, Henry Gordon Stott, John Edward Swanker, Erle Leroy Veuve, Isaac Wayne von Leer, Edward Thomas Wright.

Associate Members (11): Harold Davis, John Hatfield Frazee, Howard Arnold Greene, Joel Manning Howard, William Herbert Hyde, Lora Walter Miller, George Alexander Hutchings Mould, William Stuart Smith, Samuel Forsythe Thomson, Louis Wachtel, David Miller White.

Associates (3): George Henry Frost, Lewis Roberts Pomeroy, Ernest Leslie Ransome.

Fellows (2): Charles Marvin Everest, Nelson James Welton.

LIBRARY

At the time of the last Report of the Board, December 31st, 1916, the Library, so far as its management was concerned, had been turned over to the Engineering Societies Library, although it had not been moved to the Thirty-ninth Street Building. The work of preparation for moving the books had been finished.

The movement of the 67 000 volumes, of which there were no duplicates in the Engineering Societies Library, was completed during February, under the supervision of Dr. Hunt. They were arranged temporarily on the shelves in the Thirty-ninth Street Building in the same order as in the Fifty-seventh Street House, and were inaccessible for use for only a few days. Since that time they have been left in the same condition, that is to say, they are available for use in the Engineering Societies Library exactly as they had been heretofore in our old House.

There were about 22 000 books and pamphlets in the Library of the Society which were duplicated in the Engineering Societies Library, and a number of suggestions as to the disposition of these books were made. After careful consideration of all the proposals, most of which contemplated breaking up the collection and disposing of parts of it to various libraries, it was decided to donate all these books to the Cleveland Association of Members, on the understanding that the collection would be kept intact and would form the nucleus for an Engineering library in Cleveland. In July, 1917, this action was carried out. The books were transferred to the custody of the Cleveland Association of Members, and are now on the shelves of the Cleveland Public Library, which consented to become the custodian of them.

The book stacks belonging to this Society were dismantled and donated to the United Engineering Society, and erected in the new stack room on the fourteenth floor, immediately below the new quarters of the Society.

Our new Reading Room where about 400 current periodicals are kept, will be in close touch with the Engineering Societies Library, and is intended for use by the membership and others, practically in the same way as was the Reading Room in Fifty-seventh Street in connection with the Library of this Society.

By resolution of your Board, the ownership of that portion of the Society's Library which was moved to the Engineering Societies Library, was formally tendered to the United Engineering Society, but up to the present time, no formal acceptance of the gift has been received. On April 1st, 1917, Mr. Harrison W. Craver was appointed Director of the Engineering Societies Library, and at once assumed his duties. It will be noted that book notices of important accessions to the united library have been published continuously in our *Proceedings*.

COMMITTEES

There are at present six Special Committees made up of members appointed to report on Engineering subjects. Two of these have written final reports, which will be presented to the Annual Meeting.

Messrs. William H. Burr, J. H. Gregory, and H. N. Latey, were appointed to represent the Society on a Joint Committee on Organization of an American Engineering Standards Committee, the other Societies represented being the American Institute of Mining Engineers, the American Society of Mechanical Engineers, the American Institute of Electrical Engineers, and the American Society for Testing Materials. This Committee reported,* and the same representatives of this Society have been appointed to serve on the permanent committee therein recommended.

Messrs. Clemens Herschel, Benjamin F. Groat, and N. A. Carle, were appointed as the representatives of this Society on a Joint Committee with other Societies to report on a Code for the Testing of Water Wheels.

PUBLICATIONS

During the year, ten numbers of *Proceedings* and one Year Book have been issued.

In *Proceedings* the list of references to current engineering literature has been continued, and has covered 129 pages and contained 5 016 classified references to 109 periodicals.

The stock of the various publications of the Society, kept on hand for the convenience of members and others, now amounts to 158 014 copies, the cost of which to the Society, for paper and press work only, has been \$23 938.14.

During the year 5 653 volumes of *Transactions* have been bound for members and others in standard half-morocco and cloth bindings.

* *Proceedings*, Vol. XLIII, p. 414 (August, 1917).

SUMMARY OF PUBLICATIONS FOR 1917.

	Issues.	Average editions.	Total pages.	Plates.	Cuts.
<i>Proceedings</i> (monthly numbers)...	10	8 550	3 432	61	645
Year Book	1	9 100	371	1	...
Total	11	3 803	62	645

The cost of publications has been:

For Paper, Printing, etc., <i>Proceedings</i>	\$24 319.65
For Plates and Cuts.....	3 703.97
For Boxes, Mailing Lists, Copyright, and Sundry Expenses	584.56
For 15 675 Extra Copies of Papers and Memoirs...	1 522.00
For Year Book.....	3 566.79

Total..... \$33 696.97

Deduct amount received from sale of publications.. 3 879.43

Net expenditure for publications for 1917.... \$29 817.54

The volume of *Transactions* (Vol. LXXXI) has not as yet been issued to the membership, due to several causes. One of these was that it was not possible to close up the Final Report of one of the Special Committees which had to be issued in this volume of *Transactions*, and the other was that the movement of the Society Headquarters made it very difficult to carry on all the work of the Society in the usual systematic manner. The volume is nearly all printed, however, and will be issued as soon as possible. On account of this fact the total cost of publications this year is not comparable with similar figures of previous years.

As nearly as can be stated at the present time, the statistics of Vol. LXXXI of *Transactions* will be about as follows:

The edition is 8 700, and the volume will contain 1 874 pages, with 17 inserted plates, and 363 cuts; and its approximate cost, for purposes of comparison with previous years' expenditures for publications, will be \$13 000.

MEETINGS

Twenty-three meetings were held during the year. The Business Meeting of the Annual Meeting of 1917 was held in the Engineering Societies Building by invitation of the United Engineering Society, this Society at that time not having moved its Headquarters. The meetings of April 4th, November 5th, November 21st, December 5th, and December 19th, were also held in the Thirty-ninth Street Building. All other meetings during the year were held at the Fifty-seventh Street House.

At these meetings there were presented 20 formal papers, 9 of which were illustrated with lantern slides, 4 lectures, 2 of which were illustrated with lantern slides, and 1 informal discussion. There were also four papers published which were not presented for discussion at any meeting of the Society. The number of members and others who took part in the preparation or discussion of these papers and lectures was 281.

The Forty-ninth Annual Convention, which was to have been held at St. Paul and Minneapolis, Minn., on June 12th to 15th, 1917, was abandoned on account of the war.

The total attendance at the 23 meetings was about 4320. The registered attendance at the Annual Meeting was 776, but there were many guests present at all these meetings and also members who failed to register.

In addition to these meetings, the Society has participated in joint meetings with other organizations as follows:

On the evening of May 10th, 1917, in the auditorium of the Engineering Societies Building, the John Fritz Medal for 1917 was awarded to Professor Henry M. Howe for his "Investigations in Metallurgy and Especially in the Metallography of Iron and Steel."

On November 14th, 1917, there was held in the Auditorium a Joint Meeting of the Founder Societies, at which about 1100 persons were present, signaling the completion of the Catskill Water Supply. President Pegram presided, and addresses were made by Hon. John Purroy Mitchel, Mayor of the City of New York, Charles Strauss, President, Board of Water Supply, and J. Waldo Smith, M. Am. Soc. C. E., Chief Engineer. Alfred D. Flinn, M. Am. Soc. C. E., Deputy Chief Engineer, described this great work, illustrating his remarks with lantern slides.

On December 7th, 1917, the Society was formally welcomed as one of the Founder Societies by the other three Founders, the American Institute of Mining Engineers, the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers. At one o'clock on that day the President and Board of Direction of the Society were entertained at luncheon, and in the evening, in the Auditorium of the Engineering Societies Building, formal exercises were held. Chas. F. Rand, President, U. E. S., presided. Gano Dunn, M. Am. Soc. C. E., representing the American Institute of Electrical Engineers, addressed the meeting. Ira N. Hollis, Past-President, American Society of Mechanical Engineers, spoke as a representative of that Society. Dr. Rossiter W. Raymond, Secretary Emeritus of the American Institute of Mining Engineers, addressed the meeting as a representative Mining Engineer. William L. Saunders, M. Am. Soc. C. E., was introduced by the Chairman as not speaking for any particular Society, but for the Profession generally. George H. Pegram.

President, Am. Soc. C. E., responded to the cordial words of welcome in behalf of this Society, and called on Past-President George F. Swain to speak from the standpoint of the out-of-town members. Chas. Warren Hunt, Secretary, American Society of Civil Engineers, was called upon by Mr. Rand to say a few words, and as Vice-President of the United Engineering Society to adjourn the meeting.

The new quarters of the Society were open for inspection during the evening and were visited by a great many members of the Society, and others.

MEDALS AND PRIZES

For the year ending with July, 1916, prizes were awarded as follows:

The Norman Medal to J. A. L. Waddell, M. Am. Soc. C. E., for his paper entitled, "The Possibilities in Bridge Construction by the Use of High-Alloy Steels."

The J. James R. Croes Medal to C. E. Smith, M. Am. Soc. C. E., for his paper entitled "History of Little Rock Junction Railway Bridge, of the St. Louis, Iron Mountain and Southern Railway Company, Over the Arkansas River at Little Rock, Arkansas, 1883-1914."

The Thomas Fitch Rowland Prize to E. L. Sayers and A. C. Polk, Members, Am. Soc. C. E., for their paper entitled, "The Lock 12 Development of the Alabama Power Company, Coosa River, Alabama."

The James Laurie Prize to William G. Grove, Esq. (now M. Am. Soc. C. E.), and Henry Taylor, Assoc. M. Am. Soc. C. E., for their paper entitled, "Reconstruction of the Norfolk and Western Railway Company's Bridge Over the Ohio River at Kenova, West Virginia."

The Collingwood Prize for Juniors to Harold Perrine, Jun. Am. Soc. C. E. (not now connected with the Society), and George E. Strehan, Jun. Am. Soc. C. E. (now Assoc. M. Am. Soc. C. E.), for their paper entitled, "Cinder Concrete Floor Construction Between Steel Beams."

CHANGE OF SOCIETY HEADQUARTERS

In the last Report of your Board, the report of the progress made in adding three stories to the Engineering Societies Building on West Thirty-ninth Street was brought up to date, and the statement was made that the Fifty-seventh Street property of the Society had been placed on the market. The Report of the Secretary of the Society,* who was also a member of the Building Committee of the United Engineering Society, gives in detail the cost of the work and a general description of the quarters now occupied by the Society, together with a financial statement of the cost, which need not be repeated here.

The Headquarters of the Society were moved to the Engineering Societies Building during October. It was necessary, however, that

* *Proceedings*, Vol. XLIII, p. 667 (November, 1917).

the stock of Society publications be left in the Fifty-seventh Street House, because the new stack room in Thirty-ninth Street is not yet ready for the books. It is expected that very soon the stacks will be completed, and the library books now shelved temporarily on the twelfth floor will be moved to their permanent place, giving shelf room for necessary storage of the Society's publications, and that in the near future all the Society's property will be moved to the new quarters.

The condition of the real-estate market, due to the war, has made it impossible to dispose of the property of the Society without great financial sacrifice, and it remained unoccupied for about two months.

The United States Food Administration, of which Herbert C. Hoover, M. Am. Soc. C. E., is the head, was seeking a suitable place for carrying on its work, and that of the New York Federal Food Board, and the House of the Society, being admirably suitable in every way, was offered by your Board, and accepted by the National Food Administration. Under the terms of the agreement the Food Administration assumes the entire cost of the maintenance of the building during the term of its occupancy, and agrees to vacate on short notice should the Society find it necessary to give such notice. The home of the Society for the past twenty years, therefore, continues, after a brief interval, to fulfill a useful public purpose.

WAR ACTIVITIES

At the time of the Annual Meeting, January 18th, 1917, an address was made by John Howard Whitehouse, Esq., Member of Parliament, on the Changes in Economic and Social Conditions in England due to the War.

Under date of February 6th, 1917, President Pegram signed a joint telegram, with the Presidents of the other Founder Societies, addressed to the President of the United States, expressing the cordial unity of the 30 000 Engineers representing the membership of these four Societies in the support of Congress and the Administration in its stand for freedom and safety on the seas, and their assistance in the organization of Engineers for the service of our country in case of war.

At the meeting of March 7th, 1917, resolutions were unanimously adopted expressing cordial approval and commendation of the severing of diplomatic relations with Germany, and, as loyal citizens, tendering to the Government all the service of which we severally and collectively are capable, and urging Congress to exercise its Constitutional power "to raise and support armies" by the immediate establishment of a permanent and democratic system of defence based on universal service and training under direct and exclusive Federal control. A copy of these resolutions was transmitted immediately to the President of the United States, to the Secretary of War, and other members of

the Cabinet, and to the members of both Congressional Committees on Military Affairs.

On March 14th, 1917, J. deB. W. Gardiner, Assoc. M. Am. Soc. C. E. (formerly an officer of the U. S. Army), addressed the meeting on "The Present Situation of the Great War", giving an exposition of the strategy and tactics which led up to the present conditions, and, based on the events of the past two years, a discussion of the logical outcome; and on April 4th, 1917, Mr. John R. MacArthur, a member of the American Industrial Commission which visited France in 1916, addressed the Society on "France at Work and at War, as seen on a Recent Visit".

On April 18th, 1917, your Board adopted the following resolutions:

"Whereas, a state of war, between our Country and a great foreign power, now exists, and

"Whereas, all previous experience of our own, no less than that of other nations, has demonstrated the danger, as well as insufficiency, of relying on volunteer armies and navies for the national defense; be it

"Resolved: That Congress be petitioned to pass at once a bill providing for universal military training and service, which we hold to be the only proper, democratic, and efficient way for creating the public defense; and

"Be it further resolved: That a copy of these resolutions be transmitted to the President of the United States and to each Senator and Member of the House of Representatives."

In the *Proceedings* for May, 1917, a letter from the Hon. William C. Redfield, Secretary, Department of Commerce, referring to the necessity for increased production of food, and urging co-operation with the Department of Agriculture in its campaign to increase the crops of the country, was published for the information of the membership.

Under date of July 31st, 1917, a cablegram was received from John F. Stevens, M. Am. Soc. C. E., sending, in behalf of the Central Board of Engineers of Ways and Communications, fraternal greetings, and requesting the Society to thank the United States for sending the Advisory Commission to Russia. President Pegram transmitted this to the President of the United States, and received a cordial reply.

The Society has, so far as it could, aided, through its membership, in the taking of the military census and inventory, and in the recruiting of Engineer Regiments. Letters have been received from the Director of the Military Census of New York City, and from the Mayor, expressing great appreciation of this work.

The "Roll of Honor" published in the *Proceedings* for November, 1917, contained 575 names. A month later, the list published in the December *Proceedings* contained the names of 743 officers, and at the present date our records show that there are 929 members of the Society in uniform, almost all of them being commissioned officers.

A report has been received from Messrs. Alfred Craven and A. M. Hunt, the representatives of this Society on the Naval Consulting Board, giving a brief summary of its work. The report calls attention to the fact that in addition to the two direct representatives of the Society on the Board, four other of its members are also members of the Society. This report will be published in the *Proceedings* for January, 1918.

GENERAL

The attention of members is called to a number of interesting matters which have been published in *Proceedings* during the year, as follows:

Correspondence with regard to the question of contingent fees,* which was ordered printed for the information of members.

Resolutions adopted by the San Diego Association of Members with regard to a proposed Bill for the Licensing of Architects.†

A Bill for the Licensing of Engineers, which was adopted by the Legislature of the State of Florida, May 18th, 1917, and became a law. This Bill, the full text of which was published,‡ was largely based on the draft of a Bill prepared by a Joint Committee of the Founder Societies, but which was never adopted by this Society, and it is believed is the first legislation of the kind adopted in any State.

Resolutions were adopted by your Board looking to a closer relation between this Society and the Canadian Society of Civil Engineers at its meeting of October 9th, 1917.§ These resolutions were forwarded to the Canadian Society of Civil Engineers, and resolutions cordially reciprocating the co-operative spirit expressed have been received from that Society.

In October, 1917, the Board appropriated and paid the sum of \$500 toward the erection of a Memorial to the late John Ericsson, Honorary Member, which is to be placed in Washington, D. C.

On November 1st, 1917, the Executive Committee of the Board adopted a resolution|| condemning the eight per centum super tax on net incomes of more than \$6 000 of individuals, and requesting its repeal, characterizing it as discriminatory and unjust. These resolutions were forwarded to the Chairman of the Finance Committee of the Senate and of the Ways and Means Committee of the House, and each member of the Society was urged to act individually in communicating directly with his representatives in Congress along the same lines.

* *Proceedings*, Vol. XLIII, pp. 332 and 405 (May and August, 1917).

† " " " " p. 341 (May, 1917).

‡ " " " " 408 (August, 1917).

§ " " " " 642 (November, 1917).

|| " " " " 672 (November, 1917).

Resolutions* were adopted by the Executive Committee, on November 27th, 1917, calling attention to the fact that the supply of technically trained Engineers for present and future usefulness should be continuous, and asking that all possible consideration be given to students, who are certified by Engineering Schools of recognized reputation as having shown their capacity to become Engineers, to continue their education to graduation, if possible, and in any event, until necessity demands their call to active service. These resolutions were forwarded to the Secretary of War, and to other public officials, as well as to the other Founder Societies and the Engineering Council. Action has been taken on this matter by the War Department, as is shown by the letter of Gen. William M. Black, M. Am. Soc. C. E., Chief of Engineers, U. S. A.†

On March 3d, 1917, Director Otis F. Clapp died, and Frederic H. Fay was appointed by the Board to fill his unexpired term.

On June 26th, 1917, Director F. G. Jonah resigned as a member of the Board of Direction, owing to the fact that he was in active service in France. The resignation was accepted with regret by the Board, and John W. Alvord was appointed to fill the vacancy for the unexpired term.

A Committee, appointed by the Board on July 9th, 1916, to consider and report on the desirability of the establishment of some form of an Employment Bureau in connection with the activities of the Society, reported in April, 1917. The Report‡ of this Committee, in accordance with one of its recommendations, was referred by your Board to Engineering Council.

The Report of a Committee, appointed by your Board, on the Relations of Local Associations of the American Society of Civil Engineers to that Society, to other Engineering Organizations and Engineers, and to the Public, was presented to the April 17th, 1917, Board meeting, and its recommendations were adopted and ordered printed in *Proceedings*.§ The attention of all Local Associations was especially called to this report, and several of them considered the matter. The resulting discussions so far as received have been published.||

During the year the constitution of three new Associations (Duluth, Nebraska and Pittsburgh) have been approved by the Board, thus increasing the number of Local Associations to twenty-two. All statistics, minutes of meetings, and items of interest forwarded to the Secretary have been published in *Proceedings*.

During the year the Report of a Committee of the Board on a proposed Revision of the Constitution was received. The results of the

* *Proceedings*, Vol. XLIII, p. 759 (December, 1917).

† " " " " 760 (" ").

‡ " " " " 330 (May, 1917).

§ " " " " 327 (" ").

|| " " " " 584 (October, 1917).

work of this Committee have been presented to the membership, under Article IX of the Constitution, in a circular prepared by the Publication Committee.

The attention of members is called to the interesting Progress Report of the Alfred Noble Memorial Committee;* also to the article on the activities of the Society during the past twenty-five years prepared by Dr. Hunt, which describes quite fully the Society's old and new Headquarters, Library and Publications, as well as other matters of historic and present interest.†

The Society has been represented on the Engineering Foundation Board by Messrs. J. Waldo Smith and Chas. Warren Hunt. The report of the Secretary of the Foundation for the year ending September, 1917, has been published.‡

During the year the Engineering Council has been formed. Each of the four Founder Societies has four representatives on this body, and four representatives chosen by the United Engineering Society. The rules under which this new body is to operate will be found in *Proceedings*.§

The principal function of the Council is stated in the By-Laws of the U. E. S., as follows:

"The Council may speak authoritatively for all member societies on all public questions of a common interest or concern to engineers, unless objection be made by a majority of the representatives present of one of the Founder Societies or by one-fourth of the representatives present and voting. It shall defer any action which is opposed as aforesaid; such suspended action shall be referred to the governing bodies of the societies whose representatives have protested, for an expression of opinion of a veto upon further action, and may then be reconsidered if such societies have agreed."

It has been found expedient to secure an Executive to manage the many activities of the United Engineering Society, (which is the business and financial custodian of the Founder Societies and of other related funds) the Engineering Foundation, and the Engineering Council, and Alfred D. Flinn, Director of this Society, has been selected by the Boards representing these three organizations, jointly as their Secretary. Mr. Flinn assumed office on January 1st, 1918.

FINANCES

At the time of the last report of the Board, \$54 000 had been paid to the United Engineering Society on account of building expenses, and during 1917 additional payments aggregating \$208 500 have been

* *Proceedings*, Vol. XLIII, p. 648 (November, 1917).

† " " " " 2251, Papers and Discussions (December, 1917).

‡ " " " " 673 (November, 1917).

§ " " " " 342 (May, 1917).

made, bringing the total cost of the share of this Society on this account up to \$262 500. In order to secure this money, a mortgage debt of only \$150 000 has been incurred, the balance, \$112 500, having been paid out of reserve and current funds.

Other references in this report cover details incident to the change of Society Headquarters; and the details of all receipts and expenditures are fully set forth in the reports of the Secretary and Treasurer appended hereto.

By order of the Board of Direction.

CHAS. WARREN HUNT,
Secretary.

REPORT OF THE SECRETARY FOR THE

TO THE BOARD OF DIRECTION OF THE

GENTLEMEN:—I have the honor to present a statement of Receipts and Disbursements for the fiscal year of this Society, ending December 31st, 1917. I also append a general Balance Sheet showing the condition of the affairs of the Society.

Respectfully submitted,

CHAS. WARREN HUNT,
Secretary.

RECEIPTS.

Balance on hand December 31st, 1916, in Bank and in hands of Secretary.....		\$49 888.28
Entrance Fees.....	\$16 195.00	
Current Dues.....	93 626.88	
Past Dues.....	6 312.83	
Advance Dues.....	30 426.26	
Certificates of Membership.....	806.25	
Badges.....	3 591.17	
Sales of Publications.....	3 879.43	
Library.....	167.77	
Annual Meeting.....	1 041.05	
Binding.....	4 921.34	
Interest.....	5 904.82	
Compounding Dues.....	575.00	
Miscellaneous.....	350.24	
Mortgage.....	130 000.00	
Old Paper and Books Sold.....	185.00	
500 Collapsible Chairs, sold to U. E. S.....	564.30	
		<u>\$298 547.34</u>

\$348 435.62

YEAR ENDING DECEMBER 31st, 1917.

AMERICAN SOCIETY OF CIVIL ENGINEERS.

DISBURSEMENTS.

Salaries of Officers.....	\$15 100.00	
Mileage of Directors.....	4 492.22	
Mileage of Nominating Committee.....	565.30	
Work of Committees (Including Mileage, \$328.26)	4 894.46	
Clerical Help	21 313.90	
Caretaking	1 916.64	
Publications	33 696.97	
Postage	8 259.77	
General Printing.....	4 000.39	
Office Supplies.....	1 178.36	
House Supplies.....	146.66	
Reading Room Maintenance.....	182.04	
Badges	2 343.60	
Certificates of Membership.....	691.00	
Binding	63.15	
Prizes	265.39	
Annual Meeting.....	2 305.51	
Annual Convention	217.75	
Maintenance of House.....	25.82	
Heat, Light and Water.....	1 131.71	
Furniture	7 932.62	
Interest on Mortgage.....	1 459.73	
Insurance	161.25	
Current Business (Includes Telephone Ser- vice and all Expenses of Meetings)....	4 831.07	
Petty Expenses	126.74	
U. E. S. Assessment for New Quarters (two months)	1 797.44	
U. E. S. Library Assessment (one year)....	4 000.00	
U. E. S. Building Enlargement.....	208 500.00	
U. E. S. Special Assessment, Alteration of Building	1 632.36	
J. E. S. Final Settlement on Account of Searches	228.85	
Low Society Headquarters (Paneling).....	5 100.00	
Moving Expenses	155.50	
Alfred Noble Memorial Fund.....	1 221.45	
Miscellaneous	153.34	
		\$340 090.99
Balance on hand, December 31st, 1917:		
In Garfield National Bank.....	\$6 844.63	
In Hands of Secretary.....	1 500.00	
		8 344.63
		<u>\$348 435.62</u>

GENERAL BALANCE SHEET, DECEMBER 31ST, 1917. ACCOMPANYING REPORT OF THE SECRETARY.

[Society Affairs.

ANNUAL REPORT

ASSETS.		LIABILITIES.	
Three Lots (Actual cost \$185 406.20)		Dues for 1918 paid in Advance.....	\$30 426.26
Estimated Value.....	\$350 000.00	Mortgage Debt.....	150 000.00
Building (Cost, less 2% annually for depreciation).....	125 510.48	Interest accrued on Mortgage.....	2 404.17
New Society Headquarters.....	5 100.00	Funds invested in Society House, Lots and Library*.....	28 590.78
Furniture.....	16 895.71	Herbert Steward Library Fund.....	2 060.00
Publications on hand, (inventoried cost).....	23 938.14	Joseph G. Swift Library Fund.....	1 030.00
New York City non-taxable 4½% bonds.	10 300.00	Balance of Donations on account of Work of Special Committees.....	2 641.84
Interest accrued on Investments.....	141.67	Surplus (including Reserve Fund of \$7 210.00)	697 578.35
Library: Cash expended for books, etc.	\$22 122.22		
Donations (estimated) ...	72 310.83		
	94 433.05		
United Engineering Society, Treasurers Receipts for cash payments, a/c enlargement of Building.....	262 500.00		
Due from Members.....	15 268.01		
Due from Non-Members.....	847.95		
Unexpired Fire Insurance (Premium)	251.76		
Alfred Noble Memorial (Loan).....	1 200.00		
Cash	8 344.63		
	\$914 731.40		\$914 731.40

We have audited the accounts of the American Society of Civil Engineers for the year ended December 31st, 1917, and (assuming that the estimate of the property valuation is correct) we certify that in our opinion the above Balance Sheet shows correctly the financial condition of the Society as of that date.

NEW YORK,
JANUARY 8TH, 1918.
LYBRAND, ROSS BROS. & MONTGOMERY,
Certified Public Accountants.

* Compounding Dues Fund, \$12 330.00; Norman Medal Fund, \$1 000.00; Rowland Prize Fund, \$1 222.50; Collingwood Prize Fund, \$1 000.00; Fellowship Fund, \$13 038.28.

**REPORT OF THE TREASURER
OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS
FOR THE YEAR ENDING DECEMBER 31st, 1917.**

In compliance with the provisions of the Constitution, I have the honor to present the following report for the year ending December 31st, 1917:

Balance on hand, December 31st, 1916.....		\$49 888.28	
Receipts from current sources, January 1st to December 31st, 1917.....	\$163 655.67		
Interest from U. E. S. on building funds advanced	4 891.67		
June 14th, 1917, second install- ment on mortgage loan.....	\$30 000.00		
July 14th, 1917, third install- ment on mortgage loan.....	40 000.00		
Aug. 31st, 1917, fourth install- ment on mortgage loan.....	45 000.00		
Oct. 31st, 1917, fifth install- ment on mortgage loan.....	15 000.00	130 000.00	298 547.34
<hr/>			
Payment of audited vouchers for current business, January 1st to December 31st, 1917	\$115 726.01		
Payments on account of Engineering Soci- eties Building enlargement.....	208 500.00		
Special assessment for alteration of Fifth floor of Engineering Societies Building.....	1 632.36		
Alfred Noble Memorial (Loan to Commit- tee)	1 200.00		
New Society Headquarters:			
Expenses due to extra paneling.	\$5 100.00		
Furniture (new and refinishing old)	7 932.62	13 032.62	
<hr/>			
Balance on hand, December 31st, 1917:			
In Garfield National Bank....	\$6 844.63		
In hands of Secretary.....	1 500.00	8 344.63	
		<hr/>	<hr/>
		\$348 435.62	\$348 435.62

Respectfully submitted,

GEO. W. TILLSON,
Treasurer.

NEW YORK, January 8th, 1918.

ACCESSIONS TO THE UNITED ENGINEERING SOCIETY LIBRARY

(From December 1st to 31st, 1917)

DONATIONS*

The statements made in these notices are taken directly from the books themselves, and this Society is not responsible for them.

STANDARD WIRING FOR ELECTRIC LIGHT AND POWER:

As Adopted by the Fire Underwriters of the United States, in Accordance with the National Electrical Code, with Explanations, Illustrations, and Tables Necessary for Outside and Inside Wiring and Construction for All Systems, Together with a Section on House Wiring. By H. C. Cushing, Jr. 23d ed. N. Y., The Author, 1917. 360 pp., 47 illus., 7 x 4 in., leather.

The object of the book has been to standardize this work. The author has had the co-operation of the Electrical Committee of the National Fire Protection Association, the Wiring Committee of the Commercial Section of the National Electric Light Association, and the Society for Electrical Development.

RADIO COMMUNICATION:

Theory and Methods, with an Appendix on Transmission over Wires. By John Mills. N. Y., McGraw-Hill Book Co., Inc.; Lond., Hill Publishing Co., Ltd., 1917. 205 pp., 126 illus., 7 x 5 in., leather.

The substance of a course of lectures given to a company of the U. S. Reserve Signal Corps troops, the members of which had had some previous training in electrical engineering. The aim has been to present the fundamental principles and methods without using any mathematics except elementary algebra or presupposing more than a limited knowledge of physics.

THE ELECTRIC VEHICLE HAND-BOOK.

By H. C. Cushing, Jr., and Frank W. Smith. 5th ed. N. Y., H. C. Cushing, Jr. (copyright 1917). 388 pp., 172 illus., 7 x 4 in., flexible cloth. \$2.00.

The object of this handbook is to set forth as clearly as possible the fundamental principles in the operation, care, and maintenance of electric vehicles, their batteries, tires, motors, controllers, and accessories.

PROPERTIES OF STEAM AND AMMONIA.

By G. A. Goodenough. 2d ed. N. Y., John Wiley & Sons, Inc.; Lond., Chapman & Hall, Ltd., 1917. 126 pp., 7 illus., 3 pl., 10 x 7 in., cloth. \$1.25.

Tables of the properties of saturated steam and ammonia, based on new formulations which give more accurate data than those previously used to calculate such tables. Various supplementary tables are included.

NON-TECHNICAL CHATS ON IRON AND STEEL

And Their Application to Modern Industry. By LaVerne W. Spring. N. Y., Frederick A. Stokes Company (copyright 1917). 11 + 358 pp., 294 illus., 8 x 6 in., cloth. \$2.50.

An account of the metallurgy and mechanical working of iron and steel, based on the author's practical experience as a chemist and metallurgist in the industry. Written in popular style and very fully illustrated. Intended to provide a readable general review of modern methods for those unacquainted with the subject. Includes a list of references to other books.

* Unless otherwise specified, books in this list have been donated by the publishers.

A PRACTICE BOOK IN ELEMENTARY METALLURGY.

By Ernest Edgar Thum. N. Y., John Wiley & Sons, Inc.; Lond., Chapman & Hall, Ltd., 1917. 8 + 313 pp., 59 illus., 9 x 6 in., cloth. \$2.75.

Represents the laboratory course in metallurgy given to co-operative students in mechanical, civil, and electrical engineering at the University of Cincinnati. The intention has been to provide a set of detailed directions for experimental procedure in studying the metallic materials of engineering construction, which would enable large numbers of students to be taught with a minimum of equipment and personal supervision.

FLOTATION.

By T. A. Rickard and O. C. Ralston. San Francisco, Mining and Scientific Press, 1917. 416 pp., 131 illus., 9 x 6 in., cloth. \$3.00.

This book is a compilation of articles by a number of authors, many of which have appeared in mining periodicals. These articles have been arranged and connected to form a report on recent progress in the application of the process, giving the latest available information on its technology. It discusses the history, principles, and theory of flotation, costs, methods, troubles, etc., and includes a review of the litigation which has arisen.

UNITED STATES RIFLES AND MACHINE GUNS:

A Detailed Account of the Methods Used in Manufacturing the Springfield, 1903, Model Service Rifle; also Descriptions of the Modified Enfield Rifle and Three Types of Machine Guns. By Fred H. Colvin and Ethan Viall. N. Y., McGraw-Hill Book Company, Inc.; Lond., Hill Publishing Co., Ltd., 1917. 332 pp., 2347 illus., 12 x 9 in., cloth. \$3.00.

Prepared at the request of the Ordnance Bureau, United States Army, to assist manufacturers in undertaking contracts. Shows the methods in use at the Springfield Armory during the fall of 1916. The machine guns included are the Lewis, the Maxim, the Vickers, and the United States Machine Rifle.

THE EXPORTERS' DIRECTORY OF JAPAN, 1917.

Tokyo, Imperial Commercial Museum of the Department of State for Agriculture and Commerce. 415 + 26 pp., 9 x 6 in., flexible cloth. \$2.50.

A directory of Japanese merchants and manufacturers engaged in the export business, arranged under the lines of merchandise in which they deal. A brief description of Japan, giving considerable general information, is included.

THOMAS' REGISTER OF AMERICAN MANUFACTURERS, 1917.

The Largest Classified Reference Book in the World, the Only One in the United States Covering All Lines. 9th ed. N. Y., Thomas Publishing Company, 1917. 3900 pp., 12 x 10 in., cloth. \$15.00.

Includes lists of manufacturers classified alphabetically and according to business, trade papers classified by trades, banks, boards of trade, chambers of commerce, etc., and of manufacturers' representatives. This edition, according to the publisher, contains 400 pages more than the previous one.

PRACTICAL PYROMETRY:

The Theory, Calibration, and Use of Instruments for the Measurement of High Temperatures. By Ervin S. Ferry, Glenn A. Shook, Jacob R. Collins. N. Y., John Wiley & Sons, Inc.; Lond., Chapman & Hall, Ltd., 1917. 147 pp., 73 illus., 8 x 6 in., cloth. \$1.50.

Intended for use by college students, technically trained observers who deal with processes requiring high temperature measurements, and less trained observers who

may make the measurements. Includes a discussion of the theoretical principles involved and a description of the manipulative details. Experiments for purposes of instruction are also given. Contents: Standard Temperature Scales; Resistance Pyrometry; Thermoelectric Pyrometry; Radiation Pyrometry; Optical Pyrometry; Conclusion; Tables.

A HANDBOOK FOR CANE-SUGAR MANUFACTURERS AND THEIR CHEMISTS.

By Guilford L. Spencer. 6th ed., enl. N. Y., John Wiley & Sons, Inc.; Lond., Chapman & Hall, Ltd., 1917. 15 + 561 pp., 97 illus., 7 x 4 in., leather. \$3.50.

Contains a review of the processes of cane-sugar manufacture, practical instruction in sugar-house control, selected methods of analysis, etc. Various typographical errors of earlier editions have been corrected, and a chapter on Evaporation and Juice Heating has been added.

AN INTRODUCTION TO THEORETICAL AND APPLIED COLLOID CHEMISTRY;

The World of Neglected Dimensions. By Dr. Wolfgang Ostwald. Authorized Translation from the German by Dr. Martin H. Fischer. N. Y., John Wiley & Sons, Inc.; Lond., Chapman & Hall, Ltd., 1917. 15 + 232 pp., 45 illus., 1 por., 9 x 6 in., cloth. \$2.50.

The author has selected from his lectures before American and Canadian universities during 1913 and 1914 the five which he considers best adapted to give a general survey of modern colloid chemistry, as a pure and as an applied science, in a form readily intelligible to the general reader.

THE CHEMISTRY OF COLLOIDS:

Part I, Kolloidchemie, by Richard Zsigmondy; Translated by Ellwood B. Spear. Part II, Industrial Colloidal Chemistry, by Ellwood B. Spear. A Chapter on Colloidal Chemistry and Sanitation, by John Foote Norton. N. Y., John Wiley & Sons, Inc.; Lond., Chapman & Hall, Ltd., 1917. 288 pp., 38 illus., 9 x 6 in., cloth. \$3.00.

Professor Spear has supplemented his translation of Zsigmondy's "Kolloidchemie" by adding several brief chapters on certain matters which are of particular interest to the technical chemist. The book is supplied throughout with numerous references to the literature on colloids. Contents: General Considerations; Classification; Properties of Colloids; Theory; Inorganic Colloids; Colloidal Non-metals; Colloidal Oxides; Colloidal Sulfides; Colloidal Salts; Organic Colloids; Dyestuffs; Protein Bodies; Introduction to Part II; Smoke; Flue Fumes; Liquid Particles in Gases; Rubber; Tanning; Milk; Colloidal Graphite; Clays; Colloids in Sanitation.

GRAPHICS.

By H. W. Spangler. N. Y., John Wiley & Son, Inc.; Lond., Chapman & Hall, Ltd., 1917. 95 pp., 88 illus., 9 x 6 in., cloth. \$1.25.

This work contains the substance of a series of lectures given to students at the University of Pennsylvania, covering the fundamental principles of graphics.

GREENHOUSES;

Their Construction and Equipment. By W. J. Wright. N. Y., Orange Judd Company; Lond., Kegan Paul, Trench, Trübner & Co., Ltd., 1917. 16 + 269 pp., 131 illus., 8 x 5 in., cloth. \$1.60.

Intended for gardeners rather than for manufacturers of greenhouses. It gives, however, considerable attention to the question of their design, construction, and erection, which will be useful to engineers engaged in building such structures. Costs are given.

TABLES OF VELOCITY OF WATER IN OPEN CHANNELS.

Derived from Kutter's Formula. By Arthur Alvord Stiles. (*Bulletin No. 6* of the State Reclamation Department of Texas, August, 1917.) Austin, State Reclamation Department, 1917. 130 pp., 9 x 6 in., leather.

These tables give the velocity, in feet per second, for slopes of the water surface, expressed in the ratio of the vertical to the horizontal, varying from 0.00055 to 0.010, and for twenty-five coefficients of roughness varying from 0.006 to 0.080.

RECLAIMING THE ARID WEST:

The Story of the United States Reclamation Service. By George Wharton James. N. Y., Dodd, Mead and Company, 1917. 22 + 411 pp., 67 illus., 9 x 6 in., cloth. \$3.50.

A popular illustrated account of the various irrigation projects undertaken by the United States Reclamation Service. The history of each project is given, together with an outline of its engineering features.

TABLES OF CUBIC CONTENTS OF LEVEE EMBANKMENTS.

Designed by Arthur Alvord Stiles. (*Bulletin No. 5* of the State Reclamation Department of Texas, June, 1917.) Austin, State Reclamation Department, 1917. 212 pp., 1 pl., 9 x 6 in., leather.

Contents: Cubic Contents of Levee Embankments; Cubic Contents of Component Parts of Levee Embankments; Cubic Contents, Dimensions and Component Parts of Road Approaches to Levee Embankments.

ROLL OF HONOR

A List of Members of the Society Who are Serving in the Army or Navy of the United States or Any of Its Allies.*

- Abbot, Frederic V.** Brig.-Gen., Corps of Engrs., N. A., Office, Chief of Engrs., U. S. A., Washington, D. C.
- Acher, A. H.** Maj., Corps of Engrs., U. S. A.; Dist. Engr., Box 1809, Seattle, Wash.
- Ackerman, Alexander S.** 1st Lieut., Engr. R. C., Care, Depot Q. M., New York City.
- Adams, Edward M.** Maj., U. S. A., Care, The Adjutant-Gen., U. S. A., Washington, D. C.
- Adams, Milton Jewell.** Capt., Co. C, 114th Engrs., Camp Beauregard, Alexandria, La.
- Adams, Raymond E.** Capt., Q. M. R. C.; Asst. to the Q. M., S. E. D., Peoples Bldg., Charleston, S. C.
- Albert Frederick W.** Maj., Engr. R. C., 301st Engrs., 23 Isham St., Burlington, Vt.
- Alden, Herbert C.** 1st Lieut., C. A. C., N. G. U. S., Fort Schuyler, New York City.
- Alexander, E. Porter.** 1st Lieut., Engr. R. C., 509th Engrs., Fort Sam Houston, San Antonio, Tex.
- Alexander, Kay.** Maj., 2d in Command, 12th Canadian Ry. Troops, B. E. F., France
- Allen, Franklin R.** Capt., Engr. R. C., Co. A, 21st Tr. Bn., 305th Engrs., Camp Lee, Va.
- Allen, Herschel Heathcote.** 1st Lieut., Engr. R. C., Towson, Md.
- Allen, Ralph B.** 1st Lieut., Co. B, 25th Engrs., Am. Exp. Force.
- Allen, Walter Hinds.** Civ. Engr., U. S. N. (rank of Lt.-Commander); Public Works Officer, Navy Yard, Brooklyn, N. Y.
- Allison, William F.** Maj., Engr. R. C., Am. Exp. Force, France.
- Altman, Frank S.** Lieut., Engr. R. C., 23d Engrs., Atchison, Kans.
- Altstaetter, F. W.** Col., Corps of Engrs., U. S. A., U. S. Engr. Office, Grand Rapids, Mich.
- Anderson, J. E.** Maj., 212th Field Co., Royal Engrs., B. E. F., France.
- Anderson, J. H.** 1st Lieut., Engr. R. C., 1st Co., Camp American University, Washington, D. C.
- Anderson, W. P.** Capt., Engr. R. C., 112th Engrs., Camp Sheridan, Ala.
- Andrew, Clarence R.** Capt., Engr. R. C., 23 Vernon Ave., Newport, R. I.
- Andrews, Carl B.** Capt., Engr. R. C. (*Unassigned*), 743 Wyllie St., Honolulu, Hawaii.

* This list is made up from replies to a circular forwarded to members of the Society, and others, and is probably neither accurate nor complete. It is requested that the attention of the Secretary be called to any omissions or inaccuracies in order that they may be corrected in subsequent lists.

- Andrews, J. H. M.** Maj., Engr. R. C., 103d Engrs., Camp Hancock, Augusta, Ga.
- Angas, Robert M.** 1st Lieut., 106th Engrs., Camp Wheeler, Macon, Ga.
- Applegarth, Gault.** Capt., Engr. R. C., 23d Engrs., Care, War Dept., Washington, D. C.
- Arderly, Edward Dahl.** Col., Corps of Engrs., U. S. A., Am. Exp. Force.
- Armitage, George W.** Capt., Q. M. R. C., Honolulu, Hawaii.
- Armstrong, Charles Johnstone.** Brig.-Gen.; Chf. Engr., H. Q., Canadian Army Corps, B. E. F., France.
- Armstrong, Merwin.** Capt., Co. D, 105th Engrs., Camp Sevier, Greenville, S. C.
- Arn, William G.** Capt., Engr. R. C., 1st Bn., 13th U. S. Engrs. (Ry.), Am. Exp. Force, France.
- Ashkins, Nathan Thomas.** 1st Lieut., Engr. R. C., Lines of Communication, Eng. Headquarters, Am. Exp. Force, France.
- Ashley, Carl.** Capt., Engr. R. C., U. S. Military P. O. 702, France.
- Asplundh, E. T.** Capt.; Supply Officer, 103d Engrs., 28th Div., Camp Hancock, Augusta, Ga.
- Atterbury, W. W.** Brig.-Gen.; Director of Transportation, Am. Exp. Force, France.
- Atwood, William G.** Maj., 17th Engrs. (Ry.), Am. Exp. Force, France, Care, Adj. Gen., Washington, D. C.
- Austill, Hurieosco.** Capt., Engr. R. C., Co. D, 501st Engrs., Service Bn., Am. Exp. Force.
- Ayres, Quincy C.** 2d Lieut., Engr. R. C., 1022 Vermont Ave., N. W., Washington, D. C.
- Babbitt, Harold E.** Capt., Engr. R. C., Care, Adjutant-Gen., U. S. A., Washington, D. C.
- Baffrey, Charles R.** Capt., 102d Reg. d'Artillerie (French Army), Sectuer Postal 160, B. C. M., Paris, France.
- Bailey, Lewis P.** Capt., Engr. R. C., Co. A, 304th Engrs., Camp Meade, Baltimore, Md.
- Bailhache, John G.** 2d Lieut., Engr. R. C., Vancouver Barracks, Vancouver, Wash.
- Bakenhus, R. E.** Civ. Engr., U. S. N. (rank of Commander), Bureau of Yards and Docks, Washington, D. C.
- Baker, H. S.** Capt., Engr. R. C.; Const. Q. M., Camp Bowie, Fort Worth, Tex.
- Baker, Shirley.** Capt., Engr. R. C., Co. B, 23d Engrs., Camp Meade, Md.
- Balch, William H.** Capt., Engr. R. C., Camp American University, Washington, D. C.
- Bandy, Edward L.** 1st Lieut., Engr. R. C., Camp American University, Washington, D. C.

- Barber, Justin F.** Private, 23d Engrs., Camp Meade, Md.
Barber, Norman N. 1st Lieut., Engr. R. C., 6th Engrs., Am. Exp. Force, France.
Barclay, A. J. 1st Lieut., Engr. R. C., Fort Leavenworth, Kans.
Barney, Samuel E. Maj., Engr. R. C. (*Unassigned*), 346 Whitney Ave., New Haven, Conn.
Barstow, Eugene Duston. 1st Lieut., Engr. R. C. (*Unassigned*), Cuyahoga Falls, Ohio.
Bartholomew, B. W. 2d Lieut., Engr. R. C., 301st Engrs., Camp Devens, Ayer, Mass.
Battie, H. S. 1st Lieut., Engr. R. C., 1st Co., Fort Leavenworth, Kans.
Baxter, O. G. Capt., Engr. R. C., Camp Pike, Little Rock, Ark.
Bayliss, Paul. 2d Lieut., Engr. R. C., 8th Engrs. (Mounted), Camp Baker, Fort Bliss, Tex.
Beach, Lansing H. Col., Corps of Engrs., U. S. A., 412 Custom House, Cincinnati, Ohio.
Beal, Pendleton. Private, Headquarters Co., 165th U. S. Infantry, 83d Brigade, 42d Div.
Bebb, Edward C. Capt., Engr. R. C., U. S. Geological Survey, Washington, D. C.
Beeman, Thomas R. Capt., Engr. R. C., Am. Exp. Force, France.
Beemer, John A. Capt., Engr. R. C., Vancouver Barracks, Vancouver, Wash.
Beerbower, Dumont. 1st Lieut., Engr. R. C., 305th Engrs., Camp Lee, Petersburg, Va.
Begg, R. B. H. Capt., Engr. R. C., Am. Exp. Force, France.
Behrman, I. E. 1st Lieut., Engr. R. C., 26th Engrs., Am. Exp. Force, France.
Belknap, Francis W. Engr. R. C., U. S. Army P. O. 705, Am. Exp. Force, France.
Bellinger, L. F. Civ. Engr., U. S. N. (rank of Commander), U. S. Navy Yard, Bremerton, Wash.
Belzner, Theodore. 1st Lieut., Engr. R. C., 574 West 176th St., New York City.
Benham, Claude Gilbert. Capt., C. A. R. C., U. S. A., Fort Monroe, Va.
Benham, W. L. Maj., Q. M. R. C.; Engr. Officer in Chg. of Camp Utilities, Camp Funston, Fort Riley, Kans.
Bennison, Ernest William. 1st Lieut., Engr. R. C., Fort Leavenworth, Kans.
Bensel, J. A. Maj., Engr. R. C., Engr. Depot, Norfolk, Va.
Benson, Orville. Maj., Engr. R. C., Headquarters, Am. Exp. Force, France.
Berdeau, Ray W. 1st Lieut., Engr. R. C., 307th Engrs., Camp Gordon, Atlanta, Ga.
Betts, Clifford A. 1st Lieut., C. A. R. C., Am. Exp. Force, France.

- Billings, A. W. K.** Lt.-Commander, Care, Commander, U. S. Naval Aviation Forces, Paris, France.
- Billings, Fred M.** Capt., Engr. R. C., Camp Lee, Petersburg, Va.
- Binckley, George Sydney.** Maj., Engr. R. C., 112th Engrs., Montgomery, Ala.
- Birdseye, Claude H.** Maj., Coast Artillery Brigade, Am. Exp. Force, France.
- Bishop, Roy P.** 2d Lieut., Engr. R. C. (*Unassigned*), Oelwein, Iowa.
- Bither, T. A.** Lieut., Sig. R. C., A. S., Aviation School, San Diego, Cal.
- Bixby, William H.** Brig.-Gen., U. S. A. (*Retired*), 428 Customhouse, St. Louis, Mo.
- Black, Dudley F.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Black, G. G.** Capt., Engr. R. C.; Acting Adjutant, 314th Engrs., Camp Funston, Junction City, Kans.
- Black, James B.** 1st Lieut., Engr. R. C., Chf. Engr.'s Office, Headquarters, Am. Exp. Force, France.
- Black, Roger Derby.** Lt.-Col., Corps of Engrs., U. S. A., Headquarters, Am. Exp. Force.
- Black, R. P.** 1st Lieut., Engr. R. C. (*Unassigned*), Sewanee, Tenn.
- Black, William M.** Brig.-Gen.; Chf. of Engrs., U. S. A., War Dept., Washington, D. C.
- Blackman, J. W. B.** Lieut., Canadian Ry. Troops, Canadian Expeditionary Force.
- Blair, McCrea Parker.** Capt., No. 1 Depot Bn., Manitoba Reg., Winnipeg, Man., Canada.
- Boes, Frank C.** Capt., Engr. R. C. (*Unassigned*), 244 Larkin St., Buffalo, N. Y.
- Boesch, Clarence E.** Capt., 105th Engrs., Camp Sevier, Greenville, S. C.
- Boggs, F. C.** Lt.-Col., Corps of Engrs., U. S. A.; Col., 315th Engrs., N. A., Camp Travis, San Antonio, Tex.
- Boland, Charles J.** 1st Lieut., Signal Corps, U. S. A., 228 Eighth St., Troy, N. Y.
- Bolin, Harry W.** Sergeant, Co. E, 23d Engrs., Camp Meade, Annapolis Junction, Md.
- Bond, P. S.** Col., 107th Engrs.; Div. Engr., 32d Div., Camp MacArthur, Waco, Tex.
- Boorman, Kitchell M.** Sapper, Canadian Engrs., Training Depot, St. Johns, Que., Canada.
- Booth, Raymond.** 1st Lieut., Engr. R. C., 30 Center St., City Island, New York City.
- Booz, Horace Corey.** Col., R. T. C., N. A., Care, D. C. T., Am. Exp. Force, France.
- Bott, C. N.** 1st Lieut., Engr. R. C., 315th Engrs., Camp Pike, Little Rock, Ark.
- Bowen, Edward Withers.** Capt., Inf. R. C., Camp Lee, Petersburg, Va.

- Bowlby, Henry L.** Capt., 20th Engrs.; Regimental Adj., Camp American University, Washington, D. C.
- Boyden, Harry C.** Capt., Engr. R. C.; Asst. to Dept. Engr., Headquarters, Western Dept., San Francisco, Cal.
- Bragg, Kendal B.** Asst. Civ. Engr. (rank of Lieut. (Junior Grade)), Navy Aeronautic Station, Pensacola, Fla.
- Braly, Raymond F.** 1st Lieut., Engr. R. C.; Officer in Chg., Engr. Supply Depot, Camp Shelby, Hattiesburg, Miss.
- Braunworth, Percy L.** Capt., Engr. R. C., Am. Exp. Force, France.
- Brewster, Henry B.** Capt. and Adj., 303d Engrs., Camp Dix, Wrightstown, N. J.
- Briggs, Robert W.** 2d Lieut., Sig. R. C., A. S., 128th Aero Squadron, Camp Morrison, Va.
- Bright, Graham B.** Capt. and Regimental Adj., 305th Engrs. (Pioneers), Camp Lee, Petersburg, Va.
- Bronson, Howard F.** Capt., San. Corps, N. A., 77th Div., Camp Upton, N. Y.
- Brook, A. E.** Lieut., W. R., Royal Engrs., No. 6 Tramway Co., R. E., B. E. F., France.
- Brooking, J. H.** 1st Lieut., Co. B, 12th Engrs. (Ry.) Am. Exp. Force, France.
- Brooks, Josiah R.** 1st Lieut., Engr. R. C. (*Unassigned*), Palm Beach, Fla.
- Brown, Alfred T.** Capt., Engr. R. C., Camp American University, Washington, D. C.
- Brown, Clarence C.** 1st Lieut., Co. E, 12th Engrs. (Ry.), Am. Exp. Force, France.
- Brown, Earl I.** Col., 317th Engrs., Camp Sherman, Chillicothe, Ohio.
- Brown, Elliott C.** Lt.-Commander, U. S. N. R., Naval Base, Norfolk, Va.
- Brown, H. Whittemore.** 2d Lieut., Engr. R. C., 301st Engrs., Camp Devens, Ayer, Mass.
- Brown, Levant R.** Capt., Engr. R. C., Manila, Philippine Islands.
- Brown, Marshall W.** Maj., Engr. R. C., Am. Exp. Force, P. O. 702, France.
- Brown, Robert H.** Capt., San. Corps, N. A., 21 West 127th St., New York City.
- Brownell, E. H.** Civ. Engr., U. S. N. (rank of Commander), Navy Yard, Portsmouth, Va.
- Bryan, Clark A.** Engr. R. C., Odd Fellows Bldg., Carlisle, Pa.
- Buck, Richard S.** Maj., 11th Engrs. (Ry.), Am. Exp. Force, France.
- Buck, Walter Van.** Capt., Engr. R. C., Co. F, 23d Engrs., Camp Meade, Annapolis Junction, Md.
- Buckwalter, Harris D.** Capt., Engr. R. C., 1st Co., Camp American University, Washington, D. C.

- Bunker, George H.** Capt., Engr. R. C., 306th Engrs. Camp Jackson, Columbia, S. C.
- Bunker, Stephen S.** Capt., Engr. R. C., Co. C, 503d Service Bn., Camp Merritt, Tenafly, N. J.
- Burd, Edward M.** Capt., C. A. R. C., Coast Artillery School, Fort Monroe, Va.
- Burdett, O. L.** Capt., Co. A, 25th Engrs., Camp Devens, Ayer, Mass.
- Burger, Alfred A.** Corporal, 34th Co., 9th Training Bn., 158th Depot Brigade, Camp Sherman, Chillicothe, Ohio.
- Burgess, Harry.** Col., Corps of Engrs., N. A., 16th Engrs. (Ry.), Am. Exp. Force, France.
- Burkett, Joseph M.** Capt., Engr. R. C.; Res., Twin Falls, Idaho.
- Burky, C. R.** Capt., S. R. C., A. S., Vancouver Barracks, Vancouver, Wash.
- Burrell, Glenn S.** Civ. Engr., U. S. N. (rank of Lt.-Commander), Bureau of Yards and Docks, Washington, D. C.
- Burrowes, H. G.** 1st Lieut., Engr. R. C., Co. B, 25th Engrs., Am. Exp. Force, France.
- Burton, William.** 1st Lieut., Engr. R. C., 734 Fifteenth St., Washington, D. C.
- Bushnell, Howard B.** Capt., Engr. R. C., 23d Engrs., Camp Meade, Md.
- Bushnell, Howard E.** Capt., Ord. R. C., Picatinny Arsenal, Dover, N. J.
- Busse, Franz A.** Capt., Engr. R. C., 309th Engrs., Camp Zachary Taylor, Louisville, Ky.
- Butler, John Soule.** Maj., Engr. R. C., 1438 U St., N. W., Gen. Engr. Depot, Washington, D. C.
- Butler, Millard A.** Maj., Q. M. R. C.; Const. Q. M., Cantonment Div., Washington, D. C.
- Butler, William P.** Lieut., U. S. N. R. F., Army and Navy Club, Washington, D. C.
- Byllesby, Henry M.** Maj., Sig. R. C., A. S., U. S. A.
- Byrd, J. H.** Capt., Engr. R. C., 314th Engrs., Camp Funston, Kans.
- Caffall, Geoffrey A.** Lance Corporal, Canadian Engrs. (No. 2006392), Engr. Training Depot, St. Johns, Que., Canada.
- Cameron, Harry Frank.** Maj., Engr. R. C., 301st Engrs., Camp Devens, Ayer, Mass.
- Camp, George Dashiell.** 1st Lieut., Engr. R. C., 310 East Elmira St., San Antonio, Tex.
- Campbell, George Raymond.** Capt., Engr. R. C. (*Unassigned*), 143 West 19th St., Olympia, Wash.
- Canfield, George Hathaway.** Capt., 316th Engrs., Camp Lewis, Tacoma, Wash.
- Carey, Matthew L.** Capt., Q. M. R. C., Camp Dix, Wrightstown, N. J.

- Carey, William N.** Capt. and Adj., 313th Engrs., Camp Dodge, Des Moines, Iowa.
- Carlson, Carl Alexius.** Civ. Engr., U. S. N. (rank of Lt.-Commander), Navy Yard, Mare Island, Cal.
- Carroll, James E.** Maj., Engr. R. C., 1682 Lincoln Ave., St. Paul, Minn.
- Carter, E. Kemper.** Capt., Engr. R. C., 220 Michigan Ave., St. Joseph, Mo.
- Carty, J. E.** Col., Signal Corps, U. S. A.
- Caton, John H., 3d.** Capt., Engr. R. C., Camp American University, Washington, D. C.
- Cattell, William A.** Maj., Engr. R. C. (*Unassigned*), Foxcroft Bldg., San Francisco, Cal.
- Chambers, Frank T.** Civ. Engr., U. S. N. (rank of Captain); Comm. on Navy Yards and Naval Stations, Washington, D. C.
- Chase, Clifford E.** 1st Lieut., Engr. R. C., 4th Engrs. (in Command of Transportation for 4th Engrs), Vancouver Barracks, Wash.
- Cheney, Sherwood A.** Col., 110th Engrs., Am. Exp. Force, France.
- Cherry, Alan Gordon.** Regimental Sergeant-Maj., 301st Engrs., Camp Devens, Ayer, Mass.
- Chevalier, Willard T.** Capt., Co. D, 11th Engrs. (Ry.), Am. Exp. Force, France.
- Chittenden, Albert Frederick.** 1st Lieut., Engr. R. C., Co. F, 18th Engrs. (Ry.), Am. Exp. Force, P. O. No. 705, France.
- Christensen, George A.** Capt., Q. M. R. C., 2159 Albatross St., San Diego, Cal.
- Christophers, Reginald Gillon.** No. 60286, 2d Lieut., 34th Reinforcements, New Zealand Exp. Forces, Care, G. P. O., Wellington, New Zealand.
- Churchill, Percival M.** Maj., Engr. R. C., Commanding 2d Bn., 304th Engrs., Camp Meade, Baltimore, Md.
- Churchill, Robert C.** Eng. Corps, U. S. A., 813 Nelson St., Roanoke, Va.
- Claffin, William B.** Capt., Engr. R. C., Co. B, 114th Engrs., Camp Beauregard, La.
- Claiborne, Herbert A., Jr.** 2d Lieut., S. R. C. (*Unassigned*), 609 West Grace St., Richmond, Va.
- Clark, Howard F.** Capt., Engr. R. C., 2d Co., Fort Leavenworth, Kans.
- Clarke, Harry L.** 1st Lieut., Engr. R. C., 111 South 2d Ave., Mechanicsville, N. Y.
- Clarke, Thomas C.** Lt.-Col., 110th Engrs., Fort Sill, Okla.
- Clarke, W. D.** Capt., 23d Engrs., Seattle, Wash.
- Clayton, Thomas W.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Cleveland, Lou B.** 1st Lieut., Co. D, 105th Engrs., Camp Sevier, Greenville, S. C.

- Coe, C. S.** Capt., Engr. R. C., 17th Engrs. (Ry.), Am. Exp. Force, France.
- Coe, E. K.** Maj., Engr. R. C., Am. Exp. Force, France.
- Coleman, Eugene H.** 312th Engrs., 87th Div., N. A., Camp Pike, Ark.
- Colgan, R. J.** Capt., 11th Engrs. (Ry.), Am. Exp. Force, France.
- Columbia, Curtis F.** 1st Lieut., C. A. R. C., Heavy Artillery Headquarters, Am. Exp. Force, France.
- Compton, Arthur M.** Lt.-Col., 126th F. A., Artillery School of Fire, Fort Sill, Okla.
- Compton, R. Keith.** Maj., Engr. R. C., 214 East Lexington St., Baltimore, Md.
- Conard, Clarence Knight.** Maj., Ord. R. C.; Const. Q. M., Raritan River Ordnance Dept., Metuchen, N. J.
- Conard, R. A.** Civ. Engr., U. S. N. R. F., Port Au Prince, Haiti.
- Conway, N. B.** Capt., Engr. R. C., Depot, Engr. Replacement Troops, Fort Leavenworth, Kans.
- Cook, Paul D.** Capt., Engr. R. C., 109th Engrs., Camp Cody, Deming, N. Mex.
- Cooke, Frederick H.** Civ. Engr., U. S. N. (rank of Lt.-Commander), Naval Operating Base, Hampton Roads, Va.
- Coombs, Robert D.** Maj., Ord. R. C., 30 Church St., New York City.
- Coomer, R. M.** Capt., Engr. R. C., Headquarters, Eng. Corps, Line of Communications, Am. Exp. Force, France.
- Cooper, David R.** Capt., Engr. R. C., Am. Exp. Force.
- Cooper, Hugh L.** Lt.-Col., N. A., Am. Exp. Force, France.
- Copeland, Robert Morris.** 2d Lieut., Engr. R. C. (*Unassigned*), Am. Exp. Force.
- Corkran, Wilbur Sherman.** 1st Lieut., Co. A, 1st Engrs., Am. Exp. Force, France.
- Cornish, Lorenzo D.** Capt., Engr. R. C., Co. C, 15th Engrs. (Ry.), Am. Exp. Force.
- Cory, Harry Thomas.** Maj., Engr. R. C. (*Unassigned*), Nevada Bank Bldg., San Francisco, Cal.
- Cosby, Spencer.** Col., Corps of Engrs., U. S. A., 2027 Massachusetts Ave., Washington, D. C.
- Cowles, William Pierce.** Maj., Engr. R. C., 3227 Portland Ave., Minneapolis, Minn.
- Cox, Leonard M.** Civ. Engr., U. S. N. (rank of Commander); Public Works Officer, 12th Naval Dist., South of San Francisco Bay, San Diego, Cal.
- Cragin, Charles Calhoun.** Capt., Co. C, 18th Engrs. (Ry.), Am. Exp. Force, France.
- Crane, Albert Eli.** 1st Lieut., Engr. R. C., 6th Engrs., Am. Exp. Force, France.
- Crawford, Hugh W.** Capt., Co. A, 110th Engrs., 35th Div., Camp Doniphan, Fort Sill, Okla.

- Crecelius, S. F.** Maj., Engr. R. C.; Chf. Engr. Officer, Gen. Staff, Am. Exp. Force, France.
- Crocker, Herbert Samuel.** Maj., Engr. R. C., Cantonment Div., O. Q. M. G., 15th and M Sts., N. W., Washington, D. C.
- Crocker, James R.** Capt., Co. F, 106th Engrs., U. S. A., 202 West 79th St., New York City.
- Cromwell, George.** Capt., Engr. R. C., 4th Co., Fort Leavenworth, Kans.
- Crosby, W. W.** Lt.-Col., Engrs., N. A., Care, Chf. of Engrs., U. S. A., War Dept., Washington, D. C.
- Crozier, William.** Maj.-Gen., U. S. A.; Chief of Ordnance, War Dept., Washington, D. C.
- Cudebec, Albert B.** Capt., Engr. R. C., Am. Exp. Force, U. S. Military P. O. No. 702, France.
- Culver, Arthur.** Lieut., R. E., 156th Field Co., B. E. F., France.
- Curfman, Lawrence E.** Maj., 314th Engrs., Camp Funston, Junction City, Kans.
- Currey, J. W.** 1st Lieut., Engr. R. C., Co. C, 115th Engrs., Camp Kearney, San Diego, Cal.
- Cushing, Edward B.** Maj., Engr. R. C., Dept. of Transportation, Am. Exp. Force, France.
- Cutler, Leon G.** Capt., C. A. R. C., Fort Hancock, N. J.
- Dallis, Park A.** Capt., Engr. R. C.; Adjt., 24th Engrs., Camp Dix, N. J.
- Danforth, George Clapp.** Capt., Engr. R. C., Camp Lee, Petersburg, Va.
- Darville, M. A.** 2d Lieut., Engr. R. C., Training Camp, Belvoir, Va.
- Davidson, George B.** 2d Lieut., Engr. R. C., Camp American University, Washington, D. C.
- Davis, Chandler.** Capt., 6th U. S. Engrs., Washington Barracks, Washington, D. C.
- Davis, Daniel E.** 1st Lieut., Engr. R. C., Care, Const. Q. M., Camp Hancock, Augusta, Ga.
- Davis, Frederick A. W.** 1st Lieut., Co. E, 102d Engrs., Camp Wadsworth, Spartanburg, S. C.
- Davis, John C.** Capt., C. A. R. C., Fort Monroe, Va.
- Davis, Robert M.** 1st Lieut., Engr. R. C., U. S. Geological Survey, Washington, D. C.
- Davy, J. J.** 1st Lieut., 23d Engrs., Camp Meade, Baltimore, Md.
- Dean, Bertram D.** Capt., Engr. R. C., Co. B, 25th Engrs., and Regimental Adjt., Camp Devens, Ayer, Mass.
- de Charms, Richard, Jr.** 1st Lieut., Engr. R. C., Co. A, 503d Engrs. (Service Bn.), Am. Exp. Force, France.
- Dedicke, E. C.** 2d Lieut., U. S. A., 8 Elizabeth St., Utica, N. Y.
- De Leuw, Charles E.** 1st Lieut., Engr. R. C., 4th Engrs., Vancouver, Wash.
- Dennis, William F.** Maj., Engr. R. C. (*Unassigned*), 2201 Massachusetts Ave., Washington, D. C.

- Dent, Elliott J.** Col., 26th Engrs., Camp Dix, Wrightstown, N. J.
- Derby, George McC.** Lt.-Col., Corps of Engrs., U. S. A., U. S. Engr. Office, 519 Canal St., New Orleans, La.
- Dobson, Gilbert C.** Capt., Engr. R. C., 314th Engrs., Camp Funston, Junction City, Kans.
- Doebler, Valentine S.** Capt., Q. M. R. C., 806 University Parkway, Baltimore, Md.
- Dohm, Edward Clarence.** Capt., Engr. R. C., Vancouver Barracks, Vancouver, Wash.
- Doten, Leonard S.** Capt., Q. M. R. C., 1714 Euclid St., N. W., Washington, D. C.
- Downing, C. E.** 1st Lieut., Engr. R. C. (*Unassigned*), Belzoni, Miss.
- Doyle, John S.** Capt., Engr. R. C.; Special Disbursing Agt., Engr. Dept., U. S. A., 309 Custom House, Baltimore, Md.
- Drew, C. D.** Capt., 11th Engrs. (Ry.), Am. Exp. Force, France.
- Drummond, William W.** Capt., Engr. R. C., Camp Lee, Petersburg, Va.
- Du Bois, George B.** 1st Lieut., Engr. R. C.; Commander of 6th Div., Engr. Train, U. S. A., Washington Barracks, Washington, D. C.
- Dunlap, Walter H.** 1st Lieut., Engr. R. C., 109th Engrs., Camp Cody, Deming, N. Mex.
- Dunn, Beverly C.** Maj., Corps of Engrs., U. S. A., West Point, N. Y.
- Dunshee, Bertram K.** 2d Lieut., Engr. R. C., 316th Engrs., Camp Lewis, Tacoma, Wash.
- Du Pre, Wallace Duncan.** Lieut., Q. M. R. C., Mechanical Repair Shop, Unit No. 303, Washington, D. C.
- Durham, Henry Welles.** Capt., Engr. R. C., 20th Engrs., Camp American University, Washington, D. C.
- Durham, Leicester.** Capt., Engr. R. C., 3d Co., Camp American University, Washington, D. C.
- Eager, V. M.** 1st Lieut., Engr. R. C., Care, Const. Q. M., Raritan River Ordnance Depot, Metuchen, N. J.
- Eason, F. G.** Capt., Engr. R. C., Camp Lee, Petersburg, Va.
- Easton, Russell B.** Capt., Engr. R. C., 2d Co., Fort Leavenworth, Kans.
- Eckel, Edwin C.** Capt., Engr. R. C., Headquarters, Am. Exp. Force, France.
- Edgerton, G. E.** Lt.-Col., Corps of Engrs., U. S. A., 5th U. S. Engrs., Corpus Christi, Tex.
- Edmondson, Ralph S.** 1st Lieut., 23d Engrs., Camp Meade, Baltimore, Md.
- Edwards, G. G.** Capt., Co. F, 315th Engrs., Camp Travis, San Antonio, Tex.
- Elliott, J. W.** Capt., Engr. R. C. (*Unassigned*), Care, Va. Bridge & Iron Co., Roanoke, Va.
- Elliott, Malcolm.** Maj., Engr. R. C., 309th Engrs., Camp Zachary Taylor, Louisville, Ky.

- Ellison, Alexander H.** 1st Lieut., 20th Engrs. (Forestry), 519 Pennsylvania Avenue, Colonial Pl., Norfolk, Va.
- Embury, Aymar, 2d.** Capt., Engr. R. C., Office of Chf. of Engrs., War Dept., Washington, D. C.
- Emerson, Raffe.** Ensign, Flying Corps, U. S. N. R. F., Box 1312, Washington, D. C.
- Endicott, Mordecai T.** Civ. Engr., U. S. N. (rank of Rear-Admiral), Bureau of Yards and Docks, U. S. Navy Dept., Washington, D. C.
- Ernst, Oswald H.** Maj.-Gen., U. S. A. (*Retired*), 1321 Connecticut Ave., Washington, D. C.
- Estes, F. E.** Capt., 17th Engrs. (Ry.), Am. Exp. Force, France.
- Everett, Ralph B.** Private, 23d Engrs., Camp Meade, Baltimore, Md.
- Fahy, Joseph Augustine.** Engr. R. C., Co. 22, 316 Third Ave., Rome, Ga.
- Fairbanks, H. J.** 2d Lieut., Engr. R. C., 1st Co., Camp American University, Washington, D. C.
- Falk, Myron S.** Maj., Ord. R. C., 1800 Virginia Ave., Washington, D. C.
- Farrin, James M.** Capt., Engr. R. C., 1st Co., Fort Leavenworth, Kans.
- Feigel, John H.** 1st Lieut., Engr. R. C., 1st Co., Camp American University, Washington, D. C.
- Felton, S. M.** Director-Gen. of Rys., 734 Fifteenth St., N. W., Washington, D. C.
- Fenstermaker, DeWitt C.** Capt., Engr. R. C. (*Unassigned*), North McGregor, Iowa.
- Ferguson, Harry Foster.** 1st Lieut., Engr. R. C., Am. Exp. Force, France.
- Fernald, Gordon H.** 1st Lieut., Engr. R. C., 304th Engrs., Camp Meade, Baltimore, Md.
- Fieberger, G. J.** Col., U. S. A., Headquarters, Am. Exp. Force.
- Fifer, Frank P.** Capt., Engr. R. C., Am. Exp. Force, France.
- Filley, O. D.** Lt.-Col., Aviation Service, Army Headquarters, San Francisco, Cal.
- Finley, C. Macf.** Capt., Engr. R. C., 208 Am. Blk., Sioux City, Iowa.
- Fischer, Charles, Jr.** 2d Lieut., 308th Infantry, Camp Upton, Yaphank, N. Y.
- Fisher, Janon.** Maj., Engr. R. C. (*Unassigned*), Eccleston, Md.
- FitzGerald, C. C.** Maj., Engr. R. C. (*Unassigned*), 445 East High St., Lexington, Ky.
- FitzGerald, Gerald C.** 1st Lieut., Engr. R. C., 5th Co., Fort Leavenworth, Kans.
- FitzPatrick, F. J.** Capt., 508th Engrs., Care, Chf. of Engrs., U. S. A., Washington, D. C.
- Flagg, Herbert J.** 1st Lieut., Wash. C. A. C., Fort Flagler, Wash.
- Flagler, C. A. F.** Brig.-Gen., U. S. A., 3d Field Artillery Brigade, Fort Sam Houston, Tex.

- Flick, John K.** Capt., Engr. R. C. (*Unassigned*), 2609 Guilford Ave., Baltimore, Md.
- Fogg, Alden K.** Asst. Civ. Engr., U. S. N. (rank of Lieut. (Junior Grade)), Navy Yard, Portsmouth, N. H.
- Follin, James W.** 1st Lieut., San. Corps., U. S. A., Headquarters, 35th Div., Camp Doniphan, Fort Sill, Okla.
- Ford, William Ellis.** Capt., Engr. R. C., Camp Pike, Little Rock, Ark.
- Fortney, C. Page.** Capt., Engr. R. C., 3311 McKinley St., N. W., Washington, D. C.
- Foster, Ernest H.** Ensign, U. S. N. R. F., 111 Broadway, New York City.
- Foster, Samuel D.** 1st Lieut. and A. D. C., Headquarters, 53d Artillery Brigade, Camp Hancock, Augusta, Ga.
- Fouilhoux, J. Andre.** Capt., School of Fire, Fort Sill, Okla.
- Fowler, Charles Worthington.** 1st Lieut., Aviation Section, S. C., 73d Aero Squadron, Yale Club, New York City.
- Fox, Henry.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Fox, Stephenson W.** Maj., Engr. R. C., Room 25, War Dept., Washington, D. C.
- Frank, George Stedman.** Lieut., Aviation Section, Signal Corps, Am. Exp. Force, France.
- Franks, John B.** 1st Sergeant, Co. C, 353d Inf., N. A., Camp Funston, Kans.
- Freeman, William B.** Capt., Engr. R. C., Co. 2, Fort Leavenworth, Kans.
- Friedman, Harry B.** Lieut., Sig. R. C., A. S., Ellington Field, Houston, Tex.
- Fries, Amos A.** Col., Engrs., N. A.; Chf. of Gas Service, Am. Exp. Force, France.
- Froiseth, Richard E.** 1st Lieut., Engr. R. C., Fort Leavenworth, Kans.
- Fry, Alfred Brooks.** Capt., U. S. N., N. Y.; Engr. Aid to Industrial Mgr., U. S. Navy Yard, Brooklyn, N. Y.
- Galbreath, Albert W.** 1st Lieut., Co. B, 12th Engrs. (Ry.), Am. Exp. Force.
- Gallagher, Leonard Bruce.** Lieut., Engr. R. C., 2d Co., Camp American University, Washington, D. C.
- Galloway, John D.** Maj., Engr. R. C. (*Unassigned*), First National Bank Bldg., San Francisco, Cal.
- Galvin, James Augustine.** 2d Lieut., Engr. R. C., Co. E, 301st Engrs., Camp Devens, Ayer, Mass.
- Gardner, Warren.** 1st Lieut., Engr. R. C., 256 West 57th St., New York City.
- Garnett, Benjamin J.** 1st Lieut., Engr. R. C., Vancouver, Wash.
- Gartensteig, Charles.** Capt., Engr. R. C. (*Unassigned*).
- Gausmann, Roy W.** Capt., Engr. R. C., Co. D, 303d Engrs., Camp Dix, Wrightstown N. J.
- Gayler, E. R.** Civ. Engr. U. S. N. (rank of Commander). Port au Prince, Haiti.

- George, Howard H.** Capt., Co. E, 305th Engrs., Camp Lee, Petersburg, Va.
- Gibbs, E. A.** Maj., 15th U. S. Engrs. (Ry.), Am. Exp. Force.
- Gibbs, William Wetmore.** 1st Lieut., Engr. R. C., Co. A, 6th Engrs., Washington Barracks, Washington, D. C.
- Giesting, Frank A.** Maj., Engr. R. C., 302d Engrs., Camp Upton, N. Y.
- Giffels, William C.** 1st Lieut., Engr. R. C., 310th Engrs., Camp Custer, Battle Creek, Mich.
- Gladding, James N.** Capt., Engr. R. C., City Hall, El Paso, Tex.
- Glazier, W. L.** Maj., Engr. R. C., Camp Lee, Petersburg, Va.
- Goddard, Leslie Drew.** Capt., Engr. R. C., 144 Alexandrine Ave., West, Detroit, Mich.
- Godfrey, Stuart C.** Maj., Corps of Engrs., U. S. A., Fort Leavenworth, Kans.
- Goethals, George R.** Lt.-Col., U. S. A., West Point, N. Y.
- Golden, William A.** Ensign, U. S. N. R. F., U. S. S. *Mary Alice*, S. P. 397, Care, Postmaster, New York City.
- Goodfellow, James Gordon.** Capt., Royal Engrs., 416th Field Co., B. E. F., France.
- Goodman, Leon.** Capt., 109th Engrs., Camp Cody, Deming, N. Mex.
- Gordon, John Blake.** Headquarters, Chf. of Engrs., U. S. A., Am. Exp. Force, France.
- Gordon, Samuel.** Civ. Engr., U. S. N. (rank of Lt.-Commander), Naval Station, Narragansett Bay, R. I.
- Gough, William J.** Capt., Engr. R. C., 346 W. Robinson Ave., San Diego, Cal.
- Gould, William T.** Capt., Engr. R. C., 301st Engrs., Camp Devens, Ayer, Mass.
- Grant, John R.** Capt. and Adj., Royal Engrs., K. H. Q., R. E., 24th Div., B. E. F., France.
- Grant, Kenneth C.** Capt., Sig. R. C., A. S., Constr. Div., 258 Union Station, Washington, D. C.
- Grant, U. S., 3d.** Lt.-Col., U. S. A., General Staff, War Coll., Washington, D. C.
- Gravell, William Henry.** Capt., Engr. R. C., Am. Exp. Force, France.
- Green, Charles N.** Maj., Engr. R. C. (*Unassigned*).
- Green, Clarence Jasper.** 2d Lieut., Oregon Coast Artillery, Fort Stevens, Ore.
- Green, F. W.** Capt., Engr. R. C., 12th Engrs. (Ry.), U. S. Military P. O. 716, Am. Exp. Force, France.
- Greene, F. S.** Capt., U. S. N. A., Co. B, 302d Engrs., Camp Upton, N. Y.
- Greenfield, Robert A.** 303d Engrs., Camp Dix, Wrightstown, N. J.
- Gregory, Luther E.** Civ. Engr., U. S. N. (rank of Captain); Public Works Officer, Navy Yard, Puget Sound, Bremerton, Wash.
- Gregory, William B.** Maj., Engr. R. C., Am. Exp. Force, France.

- Grehan, Bernard H.** 2d Lieut., Engr. R. C., 312th Engrs., Camp Pike, Little Rock, Ark.
- Griffin, John Alden.** Capt., Co. A, 316th Engrs., Camp Lewis, Tacoma, Wash.
- Grigsby, Walter B.** 2d Lieut., Engr. R. C., Fort Leavenworth, Kans.
- Grindrod, Irvin S.** 1st Lieut., Engr. R. C. (*Unassigned*), Camp American University, Washington, D. C.
- Griswold, Harry T.** 2d Lieut.; Asst. to Artillery Engr., Fort H. G. Wright, Fishers Island, N. Y.
- Griswold, Hector C.** Asst. Civ. Engr., U. S. N. (rank of Lieut. (Junior Grade)), Army-Navy Club, Washington, D. C.
- Griswold, Lee S.** Capt., Engr. R. C. (*Unassigned*), 414 Custom House, San Francisco, Cal.
- Gross, Frederick H.** 2d Lieut., Engr. R. C., Co. B, 303d Engrs., Camp Dix, Wrightstown, N. J.
- Gross, Henry McC.** 1st Lieut., 149th M. G. Bn., 42d Div., Am. Exp. Force, France.
- Guppy, Benjamin Wilder.** Maj., Engr. R. C., 114th Engrs. (Ry.), Am. Exp. Force, France.
- Guptill, Joseph R.** Private, Co. E, 23d Engrs., Camp Meade, Baltimore, Md.
- *Hague, William.** 1st Lieut., Engr. R. C., 116th Engrs.
- Hains, Peter C.** Maj.-Gen., U. S. A. (*Retired*); Engr., Norfolk Dist., Custom House, Norfolk, Va.
- Halcombe, N. M.** Capt., Royal Flying Corps, Egypt.
- Haldeman, Walter S.** Capt., Engr. R. C., 1403 Jarvis Ave., Chicago, Ill.
- Hale, Richard King.** Lt.-Col., 101st Field Artillery, Am. Exp. Force.
- Hall, Benjamin M., Jr.** 1st Lieut., Co. B, 26th Engrs., Am. Exp. Force.
- Hall, Louis W.** Capt., Engr. R. C., Lines of Communication, Am. Exp. Force, France.
- Hall, Warren E.** Capt., Engr. R. C. (*Unassigned*), Camp American University, Washington, D. C.
- Hallberg, Arthur S.** 1st Lieut., Ord. R. C., U. S. Coast and Geodetic Survey, Washington, D. C.
- Hamilton, Edward P.** 2d Lieut., F. A. R. C., 306th Field Artillery, Camp Upton, N. Y.
- Hanavan, William L.** 1st Lieut., Inf. R. C., Am. Infantry Officers' School, Am. Exp. Force, France.
- Hancock, Henry Sydney, Jr.** Lieut., Royal Engrs.; Field Engr., First Corps, B. E. F., France.
- Hanique, Jules E.** Capt., Engr. R. C.; Adj., 316th Engrs., Camp Lewis, Tacoma, Wash.
- Hannan, David E.** Capt., Co. D, 26th Engrs., Camp Dix, Wrightstown, N. J.

* Died in France.

- Harding, Chester.** Col., Corps of Engrs., U. S. A., Balboa Heights, Canal Zone, Panama.
- Harding, Ralph L.** Capt., Engr. R. C., 35th Engrs., Camp Grant, Rockford, Ill.
- Harley, Alfred F.** Field Clerk, Engr. Corps, Am. Exp. Force, France.
- Harrah, O. W.** Capt., Engr. R. C., 3d Co., Fort Leavenworth, Kans.
- Harrington, W. C.** 2d Lieut., Engr. R. C. (*Unassigned*), Weedsport, N. Y.
- Harris, F. R.** Rear-Admiral, U. S. N.; Chief of Bureau of Yards and Docks, U. S. Navy Dept., Washington, D. C.
- Harris, Frank S. M.** Lieut., N. N. V., U. S. S. *Pueblo*, Care, Postmaster, New York City.
- Harrison, William Burr.** Maj., Engr. R. C., Office of Chf. of Engrs., War Dept., Washington, D. C.
- Hart, S. A.** 1st Lieut., Engr. R. C., 6th Co., Fort Leavenworth, Kans.
- Harts, William W.** Col., Corps of Engrs., U. S. A., Am. Exp. Force, France.
- Hasbrouck, Oscar.** Capt., Engr. R. C. (*Unassigned*), Hudson, N. Y.
- Hastings, R. P.** 1st Lieut., Engr. R. C., Care, Mrs. R. P. Hastings, 46 Chestnut St., Boston, Mass.
- Haswell, John R.** Capt., Engr. R. C.; Res., 606 Lennox St., Baltimore, Md.
- Hatch, Frederick N.** Capt., Engr. R. C., 35th Engrs., Am. Exp. Force, France.
- Hauser, Kenneth D.** Capt., 18th Engrs. (Ry.), Am. Exp. Force, France.
- Hawley, John B.** Maj., Engr. R. C., 503d Engrs., Service Bn., Am. Exp. Force, France.
- Hayne, D. C.** Capt., Engr. R. C., 2501 North Talbott Ave., Indianapolis, Ind.
- Hayt, Robert O.** 1st Lieut., Engr. R. C. (*Unassigned*), Corning, N. Y.
- Healey, Charles F.** Capt., Engr. R. C., 311th Engrs., Camp Grant, Rockford, Ill.
- Heck, Nicholas H.** Lieut., U. S. N. R. F.
- Hedges, Samuel H.** Maj., Engr. R. C. (*Unassigned*).
- Henderson, John Taylor.** Capt., 62d U. S. Infantry, Presidio, San Francisco, Cal.
- Hendricks, Ernest D.** Capt., Engr. R. C., Co. B, 303d Engrs., Camp Dix, N. J.
- Hendrie, John Gibson.** Capt., Engr. R. C., Co. A, 104th Engrs., Camp McClellan, Anniston, Ala.
- Henning, Charles S., Jr.** Sergeant, Co. A, 21st Engrs., Camp Grant, Rockford, Ill.
- Henry, D. E.** Capt., Engr. R. C., Camp Lee, Petersburg, Va.
- Herkness, Lindsay C.** Maj., Corps of Engrs., U. S. A., 39 Whitehall St., New York City.
- Herzig, Solon.** 307th Engrs., Camp Gordon, Atlanta, Ga.

- Heuer, W. H.** Col., U. S. A. (*Retired*), 401 Custom House, San Francisco, Cal.
- Hewett, M. W.** 1st Lieut., Engr. R. C., 508th Service Bn., Camp Pike, Little Rock, Ark.
- Hiles, Elmer K.** Maj., 15th U. S. Engrs. (Ry.), Am. Exp. Force, France.
- Hjorth, Lauritz Rasmus.** Co. C, 302d Field Sig. Bn., Camp Upton, N. Y.
- Hoar, Allen.** Lieut., U. S. N. R. F.; First Asst. Public Works Officer, Mare Island Navy Yard, Mare Island, Cal.
- Hobbs, Henry W.** Maj., Engr. R. C., U. S. Engr. Office, Portland, Me.
- Hodge, Henry W.** Col., Corps of Engrs., N. A., Office of Director Gen. of Transportation, Headquarters, Am. Exp. Force, France.
- Hodges, H. F.** Maj.-Gen., N. A., Camp Devens, Ayer, Mass.
- Hogan, John P.** Capt., 11th Engrs. (Ry.), Am. Exp. Force, France.
- Hollyday, R. C.** Civ. Engr., U. S. N. (rank of Captain), Navy Yard, Norfolk, Va.
- Holstlaw, Charles Henry.** 1st Lieut., Inf. R. C., 124th Infantry, Camp Wheeler, Macon, Ga.
- Holt, Andrew H.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Honeyman, Bruce R.** Capt., Engr. R. C., Co. A, 313th Engrs., N. A., Camp Dodge, Iowa.
- Hopper, John G.** Secy. to Capt. Escale of the 3d Reg. de Marche 1er Etranger (Foreign Legion), 43 Avenue de l'Opera, Paris, France.
- Horton, C. K.** Capt.; Adjt., 2d Bn., 111th Engrs., Camp Bowie, Waco, Tex.
- Horton, Dwight Fred.** Capt., Engr. R. C., 1213 Syndicate Trust Bldg., St. Louis, Mo.
- Howard, Conway Robinson.** 1st Lieut., 7th Engrs., Am. Exp. Force, France.
- Howard, Gerald B.** 1st Lieut., Engr. R. C., Co. E, 17th Engrs. (Ry.), Am. Exp. Force, France.
- Howell, George P.** Col., Corps of Engrs., U. S. A., Care, War Dept., Washington, D. C.
- Hoxie, Richard L.** Brig.-Gen., U. S. A. (*Retired*), Washington, D. C.
- Huber, William T.** Capt., Engr. R. C. (*Unassigned*).
- Hudson, H. W.** Capt., 11th Engrs., (Ry.), Am. Exp. Force, France.
- Hughes, George L.** Private, 304th Engrs., Headquarters Co., Camp Meade, Baltimore, Md.
- Huie, Irving V. A.** 1st Lieut., Co. B, 1st Engrs., U. S. A., Am. Exp. Force, France.
- Hull, George B.** Maj., Canadian Forestry Corps, Care, C. H. Orme, Prince Rupert, B. C., Canada.
- Hull, Gordon B. Gifford.** Capt., Royal Engrs., The Grange, Horton, Northampton, England.

- Hulsart, C. Raymond.** Capt., Co. B, 11th Engrs. (Ry.), Am. Exp. Force, France.
- Humphreys, Ewing S.** 1st Lieut., Engr. R. C., Lexington, Va.
- Hunt, Conway B.** Maj., Engr. R. C., District Bldg., Washington, D. C.
- Hunt, Leigh A.** Maj., Commanding 1st Bn., 110th Engrs., 35th Div., Camp Doniphan, Fort Sill, Okla.
- Hurlbut, H. B.** Capt., Ord. R. C., 3318 Nineteenth St., N. W., Washington, D. C.
- Husson, William M.** Capt., 82d U. S. Field Artillery, Camp Logan, Houston, Tex.
- Huston, Tillinghast L'Hommedieu.** Capt., Co. A, 16th Engrs. (Ry.), U. S. A., Am. Exp. Force, France.
- Huth, Christian.** 1st Lieut., Ord. R. C., Care, Div. of Am. Ordnance, Base Depot, Am. Exp. Force, France.
- Hynds, Harold D.** 1st Lieut., Sig. R. C., A. S., Constr. Div., Washington, D. C.
- Ingalls, O. L.** Maj., Engr. R. C., Army Bldg., New York City.
- Jackson, Jesse A.** Maj., 116th Bn., 41st Div., Signal Corps, Camp Green, Charlotte, N. C.
- Jacobs, Joseph.** Maj., Engr. R. C. (*Unassigned*), 1317 Smith Bldg., Seattle, Wash.
- Jacques, Henry L.** Capt., Engr. R. C., Box 435, San Fernando, Cal.
- James, Robert Lane.** Lieut., 17th Engrs. (Ry.), Am. Exp. Force, France.
- Jasper, T. McLean.** Capt., Royal Field Artillery, No. 2, R. G. A., Cadet School, Maresfield Park, Sussex, England.
- Jenkins, Charles M.** 1st Lieut.; Supply Officer, 3d Bn., 20th Engrs. (Forestry), Camp American University, Washington, D. C.
- Jenkins, Jenks B.** Maj., Engr. R. C. (*Unassigned*), B. & O. Bldg., Baltimore, Md.
- Jervey, Henry.** Brig-Gen., Corps of Engrs., U. S. A., 41st Div.
- Jessup, Walter E.** 1st Lieut., Engr. R. C., 305th Engrs., Camp Lee, Petersburg, Va.
- Johnson, Frank Melvin S.** Capt., Corps of Engrs., U. S. A., 4th U. S. Engrs., Vancouver Barracks, Vancouver, Wash.
- Johnson, Hollister.** Lieut., Engr. R. C., 20th Engrs., Camp American University, Washington, D. C.
- Johnson, Louis R.** Capt., Engr. R. C., 2d Co., Fort Leavenworth, Kans.
- Jonah, F. G.** Maj., Engr. R. C.; Chf. Engr. Dept., Light Rys., Care, Director Gen. of Transportation, Am. Exp. Force, France.
- Jones, Jonathan.** Capt., Engr. R. C., 23d Engrs., Care, Adj.-Gen., Washington, D. C.
- Jones, Percival C.** Private, 23d Engrs., Camp Meade, Baltimore, Md.
- Jones, Percy F.** Capt., Engr. R. C., Modesto, Cal.
- Jones, Sidney G.** Capt., Engr. R. C., 2d Co., Fort Leavenworth, Kans.

- Jouine, G. P. F.** Sous Lieut., au 81^{eme} Reg't. d'Artillerie, A. S. 14, par. B. C. M., Paris, France.
- Kane, Daniel C.** 2d Lieut., Engr. R. C., Office of Chf. of Engrs., Washington, D. C.
- Kane, Irving P.** Capt., Engr. R. C., 305th Engrs., Camp Lee, Petersburg, Va.
- Kastenhuber, E. G., Jr.** 1st Lieut., Sanitary Corps (*Unassigned*), Easton, Md.
- Keith, Gerald Marcy.** 2d Lieut., Engr. R. C., 301st Engrs., Camp Devens, Ayer, Mass.
- Keller, Charles.** Col., Corps of Engrs., U. S. A., Office, Chf. of Engrs., War Dept., Washington, D. C.
- Kelly, Earl W.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Kelly, Hugh Ambrose.** Sergeant, Co. S, 312th Infantry, Camp Dix, Wrightstown, N. J.
- Kelly, William.** Col., Corps of Engrs., U. S. A., 117th Engrs., Am. Exp. Force, France.
- Kemp, John E.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Keys, Edward A.** Capt., Engr. R. C., Camp American University, Washington, D. C.
- Khachadoorian, H. H.** 1st Lieut., Engr. R. C.
- King, Clifford M.** Capt., Engr. R. C., 313th Engrs., Camp Dodge, Des Moines, Iowa.
- King, Howard L.** 2d Lieut., Engr. R. C., Headquarters, 305th Engrs., Camp Lee, Petersburg, Va.
- King, W. S.** Capt., Q. M. R. C., Fort Benjamin Harrison, Indianapolis, Ind.
- Kingsley, E. A.** Maj., Engr. R. C., Am. Exp. Force, France.
- Kingsley, George.** Capt., Engr. R. C., Box 528, Wheeling, W. Va.
- Kinne, G. W.** Capt., Engr. R. C., Camp American University, Washington, D. C.
- Kissack, A. B.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Kitchen, Ernest.** 1st Lieut., Engr. R. C. (*Unassigned*), Clarks Summit, Pa.
- Kitts, Joseph A.** Capt., Engr. R. C., Vancouver Barracks, Vancouver, Wash.
- Knight, G. W.** Capt., Engr. R. C., 26th Engrs., Camp Dix, Wrightstown, N. J.
- Kniskern, Philip Wheeler.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Koss, George W.** Capt., Engr. R. C. (*Unassigned*); Pres., Koss Const. Co., Des Moines, Iowa.
- Krach, Fred R.** Private, Co. A, 23d Engrs., Camp Meade, Baltimore, Md.
- Kraemer, A. W.** 1st Lieut., Engr. R. C. (*Unassigned*), Box 75, Wheeling, W. Va.

- Krigbaum, Lowell G.** 1st Lieut., Engr. R. C., Vancouver Barracks, Wash.
- Kutz, Charles W.** Col., 13th Engrs. (Ry.), Am. Exp. Force, France.
- Kyle, Ralph B.** 1st Lieut., Engr. R. C., Fort Leavenworth, Kans.
- Labsap, Alfred H.** 1st Lieut., 114th Engrs., Camp Beauregard, Alexandria, La.
- La Forge, Frederick W.** Maj., Engr. R. C., Fort H. G. Wright, New London, Conn.
- Lamphere, Frank E.** Maj., Q. M. R. C.; Const. Q. M., in Chg., Constr., Port Newark Terminal, P. O. Box 392, Newark, N. J.
- Lamson, William M.** Maj., 306th Engrs., Camp Jackson, Columbia, S. C.
- Land, John T.** Capt., Engr. R. C., Y. M. C. A., Jacksonville, Fla.
- La Roche, Arthur L.** 1st Lieut., Engr. R. C., Binghamton, N. Y.
- Larrison, George K.** Capt., Engr. R. C., Honolulu, Hawaii.
- Lathbury, Benjamin Brentnall.** Maj., Ord. R. C., Washington, D. C.
- Latimer, C. A.** Lieut., Co. E, Corozal, Canal Zone, Panama.
- Lawton, Richard M.** Maj., Engr. R. C., 301st Engrs., Camp Devens, Ayer, Mass.
- LeBaron, R. W. P.** 1st Lieut., Co. C, 13th Engrs. (Ry.), Am. Exp. Force, France.
- Lee, Alonzo Church.** 1st Lieut., Inf. R. C., 51st Inf., Military Barracks, Chattanooga, Tenn.
- Lee, Augustine L.** Capt., Engr. R. C. (*Unassigned*), 610 Park Rd., Ambridge, Pa.
- Lee, Charles H.** 1st Lieut., Engr. R. C., Am. Exp. Force, France.
- Leeds, Charles T.** Capt., U. S. A.; Dist. Engr., U. S. Engr. Office, 725 Central Bldg., Los Angeles, Cal.
- Lehrbach, Henry G.** Asst. Civ. Engr., U. S. N. (rank of Lieut. (Junior Grade)); Public Works Officer, Navy Yard, Charleston, S. C.
- Leisen, Theodore A.** Maj., Engr. R. C.; Officer in Chg. of Utilities, Camp Custer, Battle Creek, Mich.
- Leland, O. M.** Maj., 303d Engrs., Camp Dix, Wrightstown, N. J.
- Lemen, William C. S.** Capt., Engr. R. C., Camp American University, Washington, D. C.
- Letton, Harry P.** Capt., Engr. R. C., 1910 E St., Lincoln, Nebr.
- Lewis, Charles Granville.** Private, Co. A, 21st Engrs., Am. Exp. Force, France.
- Lewis, F. H.** Maj., Engr. R. C.
- Lewis, Harold McLean.** 2d Lieut., Co. A, 502d Engrs., Am. Exp. Force, France.
- Libbey, V. B.** Lieut., Engr. R. C., Am. Exp. Force.
- Lightner, George W. C.** 1st Lieut., 21st Engrs. (Light Ry.), Am. Exp. Force, France.

- Lilly, Ridgely C.** Lieut., Corps of Engrs. (*Unattached*), Am. Exp. Force, France.
- Lindbery, Charles A.** Capt., Engr. R. C. (*Unassigned*), 2500 Elizabeth St., Bellingham, Wash.
- Lindhe, John B.** Lieut., U. S. N. R. F., P. O. Box 781, Balboa, Canal Zone, Panama.
- Livingston, Archibald R.** Capt., 115th Engrs., Camp Kearney, San Diego, Cal.
- Lockwood, Richard J.** 2d Lieut., F. A., U. S. N. A., Camp Pike, Ark.
- Logan, Chester R.** Capt., Co. C, 502d Engrs., Am. Exp. Force, France.
- Lord, Arthur R.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Louckes, Frank I.** Capt., Engr. R. C., 311th Engrs., Camp Grant, Rockford, Ill.
- Lovering, Harry D.** 1st Lieut., Engr. R. C. (*Unassigned*), 1464 Summit Ave., St. Paul, Minn.
- Lucas, E. W. Van C.** Lt.-Col., 304th Engrs., N. A., Camp Meade, Baltimore, Md.
- Lundgren, Leonard.** 1st Lieut., C. A. R. C., Portland, Ore.
- Lynch, John F.** Capt., Engr. R. C., Camp American University, Belvoir Tract, Va.
- Lyon, George J.** Capt., Engr. R. C.; Asst. to Const. Q. M., Camp Hancock, Augusta, Ga.
- Lyon, Léon E.** Capt., Engr. R. C., Am. Exp. Force, France.
- Lyons, Harold C.** 1st Lieut., 20th Engrs., Camp American University, Washington, D. C.
- MacDiarmid, Milo S.** Maj., Engr. R. C., 205 Old Custom House, Detroit, Mich.
- Macomb, John de N., Jr.** Capt. Engr. R. C., Am. Exp. Force, France.
- McCalla, W. A.** Maj., 504th Engr. Bn., Camp Merritt, Tenafly, N. J.
- McCandliss, Edgar S.** Capt., Engr. R. C., 314th Engrs., N. A., Camp Funston, Kans.
- McCandliss, L. C.** 1st Lieut., Co. D, 15th Engrs. (Ry.), Field Headquarters, Am. Exp. Force, France.
- McClintock, Hallett Edward.** Capt., Engr. R. C., 112th Engrs., Camp Sheridan, Ala.
- McComb, Dana Quick.** Capt., Engr. R. C., Fort Mills, Corregidor, Philippine Islands.
- McCullough, Conde B.** Capt., Engr. R. C., Vancouver Barracks, Vancouver, Wash.
- McCullough, Ernest.** Maj., Engr. R. C., Care Chf. of Engrs., Am. Exp. Force, France.
- McDermith, Oro.** Capt., Engr. R. C., 1218 Mills Bldg., El Paso, Tex.
- McDonough, Michael J.** Col., 114th Engrs., Camp Beauregard, Alexandria, La.
- McFarland, H. F.** 1st Lieut., Co. F., 12th Engrs. (Ry.), Am. Exp. Force, France.

- McGeehan, Paul.** Capt., Co. D., 12th Engrs. (Ry.), Am. Exp. Force, France.
- McGlathery, Samuel L.** Capt., Engr. R. C., and Adjt., 1st Bn., 312th Engrs., Camp Pike, Little Rock, Ark.
- McGregor, Robert Roy.** Capt., 21st Engrs., Camp Grant, Rockford, Ill.
- McGrew, John A.** Maj., Q. M. R. C., Care, Const. Q. M., Big Point Ordnance Depot, Portsmouth, Va.
- McKay, George A.** Civ. Engr., U. S. N. (rank of Commander), Naval Training Station, Great Lakes, Ill.
- McKenney, Charles A.** Maj., Engr. R. C., Office, Chf. of Engrs., Washington, D. C.
- McLane, G. L.** Capt. and Regimental Adjt., 1st Bn., 110th Engrs., 35th Div., Camp Doniphan, Fort Sill, Okla.
- McLoud, Paul.** 1st Lieut., Engr. R. C., Co. F, 11th Engrs., Am. Exp. Force, France.
- McMillan, W. Bruce.** 1st Lieut., Engr. R. C., Vancouver Barracks, Vancouver, Wash.
- McNayr, George E.** 2d Lieut., Engr. R. C., 302d Engrs., Camp Upton, N. Y.
- McRae, H. C.** 1st Lieut., Engr. R. C., 306th Engrs., Camp Jackson, Columbia, S. C.
- Maddox, L. R.** Capt., Engr. R. C., 17th Engrs. (Ry.), C. S. G. R., Headquarters, Am. Exp. Force, France.
- Mail, Eugene Frederick.** 1st Lieut., 4th Engrs., Vancouver Barracks, Vancouver, Wash.
- Malsbury, Omer Evert.** Capt., Engr. R. C., 2037 North 63d St., Philadelphia, Pa.
- Maltby, Frank B.** Maj., Engr. R. C., Army Bldg., New York City.
- Mandelzweig, H. H.** Capt., Engr. R. C.; Engr., County Engr.'s Office, 1480 East 115th St., Cleveland, Ohio.
- Mandigo, Clark R.** Capt., Engr. R. C., 314th Engrs., 89th Div., Camp Funston, Kans.
- Mangold, John Frederic.** Capt., Engr. R. C. (*Unassigned*), Rapid City, S. Dak.
- Manning, William J. H.** 2d Lieut., Engr. R. C., 3d Co., Camp American University, Washington, D. C.
- Mansfield, Newton.** Lt.-Commander, U. S. N., (*Retired*), U. S. Navy Recruiting Station, Anchor Bank Bldg., Pittsburgh, Pa.
- March, George Miles.** 1st Lieut., 507th Engrs., Camp Travis, San Antonio, Tex.
- Marks, Edwin H.** Maj., Corps of Engrs., Care, Chf. of Engrs., Washington, D. C.
- Marsh, Charles Reed.** Capt., Engr. R. C. (*Unassigned*), 104 District Bldg., Washington, D. C.
- Marshall, Robert B.** Maj., Engr. R. C. (*Unassigned*); Chf. Geographer, U. S. Geological Survey, Washington, D. C.

- Marston, Anson.** Maj., Engr. R. C., 109th Engrs., 34th Div., Camp Cody, Deming, N. Mex.
- Martin, George E.** Capt., 23d Engrs., Camp Meade, Baltimore, Md.
- Martin, Lewis M.** Capt., Engr. R. C. (*Unassigned*), Atlantic, Iowa.
- Marx, Raymond.** 2d Lieut., Co. K, 308th Inf., Camp Upton, N. Y.
- Massey, George B.** Lieut. (Jun. Grade), U. S. N. R. F., 711 Sheridan Rd., Winnetka, Ill.
- Matlaw, Isaac Solon.** Capt., Engr. R. C., 28th Engrs., Camp Meade, Baltimore, Md.
- Maul, Theodore.** Capt., Q. M. R. C., Schuylkill Arsenal, Philadelphia, Pa.
- Maury, Dabney H.** Maj., Engr. R. C., Office, Cantonment Constr., Monroe Courts, 15th and M Sts., Washington, D. C.
- Maxson, Frank O.** Civ. Engr., U. S. N. (*Retired*); Public Works Officer, Seventh Naval Dist. and Naval Station, Key West, Fla.
- Mazeau, Camille.** 1st Lieut., 27th Co., L. I. S. C. A. C., Fort H. G. Wright, New London, Conn.
- Means, John S.** 2d Lieut., Engr. R. C., 508th Service Bn., Camp Pike, Little Rock, Ark.
- Mellon, Albert E.** Capt., Heavy Artillery, Am. Exp. Force, France.
- Melton, Arthur Pomeroy.** Capt., Engr. R. C., Care, Headquarters, Chf. of Engrs., Lines of Communication, Am. Exp. Force, France.
- Mendenhall, Herbert D.** Capt., Engr. R. C., Am. Exp. Force, France.
- Menefee, Ferdinand N.** Capt., Ord. R. C., Albemarle Bldg., 16th Floor, New York City.
- Mengel, Carl W.** 1st Lieut., Engr. R. C., Co. B, 306th Engrs., Camp Jackson, Columbia, S. C.
- Merriam, C. A.** Capt., Engr. R. C., 401 Worcester Bldg., Portland, Ore.
- Mershon, Ralph D.** Maj., Engr. R. C., 80 Maiden Lane, New York City.
- Miles, George Frederick.** Capt., Engr. R. C., Camp American University, Washington, D. C.
- Milhan, David N.** 1st Lieut., Engr. R. C., Co. F, 106th Engrs., Camp Wheeler, Macon, Ga.
- Milkowski, V. J.** 2d Lieut., Engr. R. C., 302d Engrs., Am. Exp. Force, France.
- Miller, Charles H.** Maj., Engr. R. C., Washington, D. C.
- Miller, Daniel C.** 1st Lieut., Engr. R. C., 426 S. Hudson Ave., Pasadena, Cal.
- Miller, George S.** Maj., Engr. R. C. (*Unassigned*), 2706 West 40th St., Minneapolis, Minn.
- Miller, Harold B.** 1st Lieut., Engr. R. C.; Asst. Engr., Div of Shipyard Plants, Emergency Fleet Corporation, U. S. Shipping Board, 1961 Biltmore St., Washington, D. C.
- Miller, Hugh.** Capt., Engr. R. C. (*Unassigned*), Rice Inst., Houston, Tex.

- Miller, John O.** 1st Sergeant, Co. A, 348th Machine Gun Bn., Camp Lewis, American Lake, Wash.
- Millis, John.** Col., Corps of Engrs., U. S. A., U. S. Engr. Office, Savannah, Ga.
- Miner, Erwin J.** Capt., Engr. R. C., 5th Co., Fort Leavenworth, Kans.
- Minnis, George S.** Maj., 74th N. Y. Inf., N. G., Camp Wadsworth, Spartanburg, S. C.
- Mitchell, Charles H.** Lt.-Col., D. S. O., C. M. G., General Staff Headquarters, 2d Army, B. E. F., Care, Army Post Office, London, England.
- Molitor, Frederic.** Maj., Engr. R. C., Staff, Director General of Railways, 734 Fifteenth St., N. W., Washington, D. C.
- Moller, Irving C.** Maj., Engr. R. C., 23d Engrs., Camp Meade, Baltimore, Md.
- Monroe, Robert A.** 1st Lieut., Engr. R. C., Vancouver Barracks, Vancouver, Wash.
- Montgomery, Albertis.** 1st Lieut., Engr. R. C., 4430 Thomas Ave., South Minneapolis, Minn.
- Moore, Lewis E.** Capt., Engr. R. C., Am. Exp. Force, D. G. T., France.
- More, Charles C.** Capt., Ord. R. C., Constr. Section, Supply Div., Ordnance Dept., Washington, D. C.
- Moriarty, Clarence.** 1st Lieut., Engr. R. C., 600 U. B. Bldg., Sioux City, Iowa.
- Morrison, R. L.** Capt., Engr. R. C. (*Unassigned*), College Station, Tex.
- Morrow, Jay J.** Col., Corps of Engrs., U. S. A., Vancouver Barracks, Vancouver, Wash.
- Morrow, Samuel Roy.** 1st Lieut., Engr. R. C. (*Unassigned*), Care, Public Service Comm. of Missouri, Jefferson City, Mo.
- Morton, L. L.** Capt., Engr. R. C., 5th Co., Fort Leavenworth, Kans.
- Moss, William B.** Capt., Engr. R. C., Engr. Training Camp, Camp Lee, Va.
- Muckleston, H. B.** Capt., 1st Bn., Canadian Ry. Troops, B. E. F., France.
- Muirhead, J. H. H.** Lieut., B. E. F.
- Munoz, Gonzalo C.** Capt., Ord. R. C., 1330 F St., Washington, D. C.
- Murray, Everett B.** Capt., Engr. R. C., Camp Funston, Kans.
- Myers, E. T. D., Jr.** Maj., Engr. R. C. (*Unassigned*), 1201 Mutual Bldg., Richmond, Va.
- Nash, F. D.** 1st Lieut., 12th Engrs. (Ry.), Am. Exp. Force, France.
- Nelson, Clarence L.** Capt., C. A. C., Headquarters, 1st Brigade, Am. Exp. Force, France.
- Neuman, David L.** Capt., Corps of Engrs., U. S. A., 5th U. S. Engrs., Corpus Christi, Tex.

- Neville, C. W. J.** Lt.-Commander, U. S. N. N. V., Commanding 3d Section, 8th Naval Dist., Galveston, Tex.
- Newton, James B.** Capt., F. A. R. C.; Structural Engr., 6 Beacon St., Boston, Mass.
- Newton, Jewett B.** Capt., 301st Trench Mortar Battery, Camp Devens, Ayer, Mass.
- Newton, John P.** Capt., Engr. R. C., Camp American University, Washington, D. C.
- Nial, William A.** Capt., Engr. R. C., 45 Second Ave., Troy, N. Y.
- Nichols, Charles H.** Maj., Engr. R. C.; Const. Q. M., Camp Kearney, San Diego, Cal.
- Nixon, Courtland.** Maj., Corps of Engrs., U. S. A.; Acting Q. M., Army Bldg., New York City.
- Nolan, S. F.** Maj., C. A. C., N. G., 16 University Ave., Providence, R. I.
- Nolan, Thomas Brew, Jr.** Capt., Engr. R. C., Care, Office, Chf. of Engrs., War Dept., Washington, D. C.
- Noland, C. P.** Capt., Engr. R. C., 1st Engrs., Am. Exp. Force, France.
- Noska, G. A.** Capt., Engr. R. C., 303d Engrs. (Sappers), 78th Div., N. A., Camp Dix, Wrightstown, N. J.
- Noyes, Arthur Page.** Capt., Q. M. R. C., Am. Exp. Force, France.
- Noyes, Stephen Henley.** 1st Lieut., Sig. R. C., A. S., 1st Aero Squadron, Am. Exp. Force, France.
- Oakes, John C.** Lt.-Col., U. S. A., 113th Engrs., 38th Div., Camp Shelby, Miss.
- Okes, Day I.** Capt., Engr. R. C., Lumber Exchange, Minneapolis, Minn.
- Olberg, Charles R.** Capt., Engr. R. C., Vancouver Barracks, Wash.
- O'Meara, Robert J.** 1st Lieut., 26th Engrs., Camp Dix, Wrightstown, N. J.
- Opdycke, Henry G.** Maj., Signal Corps, U. S. A., Army Bldg., New York City.
- O'Rourke, Bernard J.** Sig. R. C., Garden City, N. Y.
- Ostrom, C. D. Y.** 1st Lieut., Coast Artillery Corps, U. S. A., Fort Barrancas, Fla.
- Ostrup, John C.** Maj., Engr. R. C., Headquarters, Am. Exp. Force, France.
- Parker, William E.** Lt.-Commander, U. S. N. R. F., Kensington, Md.
- Parks, C. W.** Civ. Engr., U. S. N. (rank of Captain); Public Works Officer, Pearl Harbor, Hawaii.
- Parmelee, Charles L.** Capt., Engr. R. C., Woolworth Bldg., New York City.
- Parsons, Archibald Livingstone.** Civ. Engr., U. S. N. (rank of Commander), Bureau of Yards and Docks, Washington, D. C.
- Parsons, Maurice G.** Capt., Engr. R. C., 910 South Madison Ave., Pasadena, Cal.

- Parsons, William Barclay.** Lt.-Col., 11th Engrs. (Ry.), Am. Exp. Force, France.
- Patrick, M. M.** Brig.-Gen., Corps of Engrs., U. S. A., 2 Rockview Terrace, Plainfield, N. J.
- Patterson, C. S.** 2d Lieut., Engr. R. C., 6th Co., Fort Leavenworth, Kans.
- Patterson, Laurence.** Sergeant, Co. A, 102d Engrs., Camp Wadsworth, Spartanburg, S. C.
- Patton, W. B.** Maj., Engr. R. C. (*Unassigned*), 612 Palladio Bldg., Duluth, Minn.
- Payne, Edwin V. R.** Maj., Engr. R. C., 1st Bn., 25th Engrs., Camp Devens, Ayer, Mass.
- Pearce, R. B.** 1st Lieut., Camp Custer, Battle Creek, Mich.
- Pease, H. T.** Capt., 316th Trench Mortar Battery, School of Fire, Fort Sill, Okla.
- Peck, Myron Hall.** Capt., 305th Pioneer Engrs., Care, The Adjutant Gen., U. S. A., Washington, D. C.
- Pennell, J. Roy.** Capt., Engr. R. C., Co. A, 117th Engrs., Am. Exp. Force, France.
- Perkins, A. H.** Capt., Engr. R. C., 17th Engrs. (Ry.), Am. Exp. Force, France.
- Perkins, Seth, Jr.** 2d Lieut., F. A. R. C., 11th Field Artillery, Douglas, Ariz.
- Perrin, Lester W.** Capt., 301st Infantry, Camp Devens, Ayer, Mass.
- Perry, Arthur Franklin, Jr.** 2d Lieut., C. A. R. C., Fort Dade, Fla.
- Perry, Charles E.** Capt., Engr. R. C., 87 Hancock St., Brooklyn, N. Y.
- Perry, F. W.** Capt., Engr. R. C.; Div. Personnel Officer, 77th Div., Staff of Maj.-Gen. J. Franklin Bell, U. S. A., Camp Upton, Yaphank, N. Y.
- Perry, Lynn E.** 1st Lieut., Engr. R. C., 16 Colonial Ave., Trenton, N. J.
- Peters, Albert A.** Capt., Co. D, 23d Engrs., Camp Meade, Baltimore, Md.
- Pierce, Charles E.** 1st Lieut., Engr. R. C. (*Unassigned*); Dist. Engr., U. S. Geological Survey, Custom House, Boston, Mass.
- Pierce, P. L.** Maj., Ord. R. C., 65 Park Ave., New York City.
- Pill, Leon Morley.** Capt. and Bn. Adj., 20th Engrs., Camp American University, Washington, D. C.
- Pillsbury, G. B.** Col., 115th Engrs., Camp Kearney, San Diego, Cal.
- Poole, J. H.** Maj., 16th Engrs., Am. Exp. Force, France.
- Poorman, A. P.** Capt., Co. A, 29th Engrs., Camp Devens, Ayer, Mass.
- Post, William S.** Maj., Engr. R. C., 316th Engrs., Camp Lewis, Tacoma, Wash.
- Potter, Charles L.** Col., Corps of Engrs., U. S. A., New Interior Bldg., Washington, D. C.

- Powell, A. O.** Maj., Engr. R. C., Room 811, Army Bldg., New York City.
- Powell, H. J. Bingham.** Staff Officer, British Ministry of Munitions in United States, 165 Broadway, Room 2700, New York City.
- Powell, W. J.** Capt., Engr. R. C., 6th Co., Fort Leavenworth, Kans.
- Powelson, W. V. N.** Lieut., U. S. N. (*Retired*), Crucible Steel Co., Harrison, N. J.
- Pratt, Arthur H.** Capt., Co. B, 26th Engrs., Am. Exp. Force, France.
- Price, Philip W.** Lieut., 3d U. S. Field Artillery, Fort Myer, Va.
- Price, T. E.** Lieut., Canadian Exp. Force, Army Depot, Purfleet, Essex, England.
- Pritchard, J. C.** 1st Lieut., Engr. R. C., 46th Engrs., Camp Dix, Wrightstown, N. J.
- Pugh, Marshall R.** Maj., 21st Engrs. (Light Ry.), Am. Exp. Force, France.
- Pung, William Sing-Chong.** Sergeant, Co. D, 357th Inf., Camp Travis, San Antonio, Tex.
- Purcell, Steuart.** Capt., Engr. R. C., 3307 Waldheim Ave., Walbrook, Baltimore, Md.
- Quinby, Edwin R.** Headquarters, Am. Exp. Force, France.
- Quinlan, George A.** Maj., 113th Engrs., Camp Shelby, Hattiesburg, Miss.
- Quinn, John I.** 1st Lieut., Engr. R. C., 116th Engrs.
- Quinn, Matthew F.** Capt., 501st Engrs., Camp Merritt, Dumont, N. J.
- Quinn, Richard.** Maj., Engr. R. C. (*Unassigned*), Honolulu, Hawaii.
- Quinn, Thomas F.** 1st Lieut., Engr. R. C., 35th Engrs., Camp Grant, Rockford, Ill.
- Rakestraw, C. L.** 1st Lieut., Engr. R. C., Vancouver Barracks, Vancouver, Wash.
- Randolph, Robert Isham.** Maj., Engr. R. C., 23d Engrs., Camp Meade, Md.
- Rathbun, J. C.** Capt., Engr. R. C. (*Unassigned*), 4558 Seventh Ave., N. E., Seattle, Wash.
- Rathjens, George W.** Maj., 313th Engrs., Care, Twin City Brick Co., St. Paul, Minn.
- Ream, Ward H.** 1st Lieut., 305th Engrs., Camp Lee, Petersburg, Va.
- Reding, James H.** Capt., Engr. R. C., Co. A, 112th Engrs., Camp Sheridan, Ala.
- Reed, Howard S.** Capt., Engr. R. C., 419 Fleming Bldg., Phoenix, Ariz.
- Reed, Paul Lyon.** Civ. Engr., U. S. N. (rank of Commander); Res. Engr., Emergency Fleet Corporation, 6245 Washington Ave., West Philadelphia, Pa.
- Reeder, Harry C.** 1st Lieut., Engr. R. C., Camp Lee, Petersburg, Va.
- Reeves, Carl H.** Capt., Engr. R. C., 4722 Latona Ave., Seattle, Wash.

- Reichardt, Walter F.** Maj.; Asst. to Const. Q. M., War Dept., Camp Beauregard, Alexandria, La.
- Reimer, Arthur Adams.** Maj., 305th Engrs., Camp Lee, Petersburg, Va.
- Reimer, Frederic A.** Maj., 104th Engrs., Camp McClellan, Anniston, Ala.
- Renshaw, Alfred H.** Capt., 302d Engrs., Camp Upton, Yaphank, N. Y.
- Reswick, Solomon.** 1st Lieut., Engr. R. C., 721 Jay St., Rome, N. Y.
- Reynolds, Leo F.** Aviation Section, U. S. A., S. M. A., Austin, Tex.
- Rhoades, Theodore E.** Capt., Engr. R. C., Camp Sherman, Chillicothe, Ohio.
- Rice, John T.** Capt., Engr. R. C. (*Unassigned*), Imperial, Cal.
- Rich, Melvin S.** 1st Lieut., Engr. R. C., 1448 Howard St., N. W., Washington, D. C.
- Richardson, F. H.** Capt., Engr. R. C. (*Unassigned*), Republic, Wash.
- Riche, Charles S.** Col., Corps of Engrs., U. S. A.; Dept. Engr., Central Dept., Chicago, Ill.
- Richmond, Allen P.** 1st Lieut., F. A. R. C., 301st Trench Mortar Battery, Camp Devens, Ayer, Mass.
- Riddle, William G.** Capt.; Div. Sanitary Officer, Div. Headquarters, Camp Jackson, Columbia, S. C.
- Ridgeway, George A.** 1st Lieut., 23d Engrs., Camp Meade, Baltimore, Md.
- Ripley, Theron M.** Maj., Engr. R. C., Camp Lee, Petersburg, Va.
- Risley, W. I.** Capt., Engr. R. C., 504th Service Bn., Camp Devens, Ayer, Mass.
- Ritchie, J. Milton.** Capt., Q. M. R. C., 1156 Fifteenth St., N. W., Washington, D. C.
- Ritow, Herman.** Co. B, 302d Engrs., Camp Upton, Yaphank, N. Y.
- Ritter, Rollin.** Capt., 130th Field Artillery, Camp Doniphan, Lawton, Okla.
- Roberts, Harry A.** Capt., Engr. R. C., 602 Terminal Bldg., Hoboken, N. J.
- Roberts, Leo Bond.** Lieut., Engr. R. C., 25th Engrs., Camp Devens, Ayer, Mass.
- Robertson, A. K.** Lieut., Royal Anglesea Engrs., France.
- Robertson, Fonzie E.** Lieut., F. A. R. C., Marlin, Tex.
- Robinson, Edward W.** Capt., Engr. R. C., 305th Engrs., Camp Lee, Petersburg, Va.
- Robinson, Ernest F.** Capt., 102d Engrs., Camp Wadsworth, Spartanburg, S. C.
- Robson, Frederick T.** Capt., *Engr. R. C.; Res., Hotel Shattuck, Berkeley, Cal.
- Robson, Ralph E.** Capt., Engr. R. C., 316th Engrs., Camp Lewis, Tacoma, Wash.
- Rockenbach, S. D.** Col. of Cavalry, U. S. A., Am. Exp. Force, France.

- Rose, W. H.** Lt.-Col., Corps of Engrs., U. S. A., 1419 F St., N. W., Washington, D. C.
- Rosenfeld, James R.** 2d Lieut., Engr. R. C., Care, Const. Q. M., Camp Merritt, N. J.
- Rosenthal, J. J.** Capt., Engr. R. C., Vancouver Barracks, Vancouver, Wash.
- Rosher, Edward Marshall.** Capt., O. C., Maintenance, Care, Asst. Director of Rys., Baghdad, Mesopotamia.
- Ross, James G.** Capt., Co. C, 306th Engrs., Camp Jackson, Columbia, S. C.
- Ross, Thomas A.** Capt., Royal Engrs., Golfers Club, 2 A, Whitehall Courts, London, S. W., England.
- Rossell, Paul Francis.** 1st Lieut., Engr. R. C., 23d Engrs., Camp Meade, Md.
- Rousseau, Harry Harwood.** Civ. Engr., U. S. N. (rank of Rear-Admiral); Member, Comm. on Navy Yards and Naval Stations; Mgr., Div. of Shipyard Plants, Emergency Fleet Corporation, Washington, D. C.
- Rowe, Donald H.** 2d Lieut., Engr. R. C., Fort Leavenworth, Kans.
- Ruggles, Arthur V.** Capt., Engr. R. C., 111th Engrs., Camp Bowie, Fort Worth, Tex.
- Ruttan, H. N.** Brig.-Gen., Commanding M. D. 10, Winnipeg, Man., Canada.
- Sadler, Carl L.** Capt., Engr. R. C., Kalamazoo, Mich.
- Sadler, Walter Clifford.** 1st Lieut., Co. F, 18th Engrs. (Ry.), U. S. Army P. O. No. 705, Am. Exp. Force, France.
- St. John, R. U.** 2d Lieut., Sig. R. C., A. S., Kelly Field, San Antonio, Tex.
- Sanger, Walter M.** Capt., Engr. R. C., 4th Co., Fort Leavenworth, Kans.
- Sargent, Edward H.** Capt., Engr. R. C., 20th Engrs.; Camp Adjt., Camp American University, Washington, D. C.
- Scammell, John Kimball.** Lieut., 13th Reserve Bn., Canadian, Seaford, Sussex Co., England.
- Schanck, F. R.** Capt., Engr. R. C., Ordnance Dept., Carriage Div., 1800 E St., N. W., Washington, D. C.
- Scharff, Maurice R.** 1st Lieut., Engr. R. C., Am. Exp. Force, France.
- Scheidenhelm, F. W.** Capt., Engr. R. C., 26th Engrs., Am. Exp. Force, France.
- Schermerhorn, Richard, Jr.** Capt., San. Corps, U. S. N. A. (*Unassigned*); Landscape Archt., 347 Fifth Ave., New York City.
- Schmucker, Beale M.** Lieut., Engr. R. C., 104th Engrs., Camp McClellan, Anniston, Ala.
- Schoder, Ernest W.** Capt., Engr. R. C., 305th Engrs., Camp Lee, Va.
- Schoonmaker, Leon M.** Capt., Engr. R. C., Camp American Univ., Washington, D. C.

- Schroeder, Seaton, Jr.** Asst. Civ. Engr., U. S. N. R. F., Public Works Dept., Navy Yard, Brooklyn, N. Y.
- Schwendener, K. DeW.** Capt., 115th Engrs., Camp Kearney, San Diego, Cal.
- Seage, Clarence E.** Ensign, U. S. N., Ordnance Dept., U. S. Navy, Washington, D. C.
- Seelye, Seth H.** 23d Engrs., Camp Meade, Md.
- Selander, John E.** Capt., Royal Engrs., Royal Societies Club, St. James St., London, S. W., England.
- Seward, Oscar A., Jr.** Capt., Engr. R. C., 315th Engrs., San Antonio, Tex.
- Sewell, John Stephen.** Col. of Engrs., N. A., Military P. O. 701, Am. Exp. Force, France.
- Shafer, Ernest Alton.** 1st Lieut., Engr. R. C., Vancouver Barracks, Vancouver, Wash.
- Shafer, J. C. F.** Capt., C. A. R. C., Am. Exp. Force, France.
- Shankland, Ralph Graham.** 1st Lieut., Engr. R. C., Fort Leavenworth, Kans.
- Shaw, Arthur Lassell.** Capt., Engr. R. C., 301st Engrs., Camp Devens, Ayer, Mass.
- Shaw, Arthur M.** Maj., Engr. R. C., Camp Beauregard, Alexandria, La.
- Shaw, Franklin Dickinson.** Capt., Engr. R. C., Philadelphia, Pa.
- Sheppard, Norman K.** Master Engr., Junior Grade, Headquarters Co., 313th Engrs., Camp Dodge, Des Moines, Iowa.
- Sheley, Horace W.** Capt., Engr. R. C. (*Unassigned*), 304 Dooly Bldg., Salt Lake City, Utah.
- Sherron, George A.** Capt., Engr. R. C., 5th Co., Fort Leavenworth, Kans.
- Sibert, William L.** Maj.-Gen., First Div., U. S. A., Am. Exp. Force, France.
- Skelly, J. W.** Capt.; Supply Officer, 12th Engrs. (Ry.), Am. Exp. Force, France.
- Sleppy, K. B.** Capt., 4th U. S. Engrs., Vancouver Barracks, Vancouver, Wash.
- Slifer, Hiram J.** Lt.-Col., 21st Engrs. (Light Ry.), Am. Exp. Force, France.
- Sloan, William Glenn.** 1st Lieut., Engr. R. C. (*Unassigned*), U. S. R. S. Bldg., Boise, Idaho.
- Smallman, R. A.** 1st Lieut., Co. D, 25th Engrs., Camp Devens, Ayer, Mass.
- Smead, R. C.** Maj., Engr. R. C. (*Unassigned*); Dist. Engr. in Chg. of River, Harbor and Fortification Works, Galveston Eng. Dist., Galveston, Tex.
- Smillie, Ralph.** Ensign, N. N. V., U. S. S. *Massachusetts*, Care, Postmaster, New York City.

- Smith, Albert.** Capt., Engr. R. C., 3d Co., Fort Leavenworth, Kans.
- Smith, Albert.** Maj., 2d Bn., 309th Engrs., Camp Zachary Taylor, Louisville, Ky.
- Smith, Alexander Crawford, Jr.** 1st Lieut., Engr. R. C.
- Smith, Charles V.** Capt., Co. E, 107th Engrs., Camp MacArthur, Waco, Tex.
- Smith, Chester K.** 1st Lieut., Engr. R. C., Co. E, 18th Engrs. (Ry.), U. S. Army, P. O. No. 705, Am. Exp. Force, France.
- Smith, Clarence Urling.** Capt., Engr. R. C., Co. E, 107th Engrs., Camp MacArthur, Waco, Tex.
- Smith, Clarke Stull.** Col., Corps of Engrs., U. S. A., Headquarters, 311th Engrs., Camp Grant, Rockford, Ill.
- Smith, Edward King.** 2d Lieut., Sig. R. C., Little Silver, N. J.
- Smith, Francis M.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Smith, Layton Fontaine.** Lieut. (Junior Grade), U. S. N. R. F., Fleet Naval Reserve, Navy Dept., Washington, D. C.
- Smith, Maxwell W.** Capt., Engr. R. C.; Engr. Officer, 308th Engrs., Camp Sherman, Chillicothe, Ohio.
- Smith, Merritt H.** Col., 1st N. Y. Field Artillery, N. G. U. S.
- Smith, S. M.** 1st Lieut., Co. D, 12th Engrs. (Ry.), Am. Exp. Force, France.
- Smith, W. W.** Master Engr., 16th Engrs. (Ry.), Am. Exp. Force, France.
- Snook, Thomas E., Jr.** 1st Lieut., Engr. R. C., Co. B, 306th Engrs., Camp Jackson, Columbia, S. C.
- Snyder, George Duncan.** Capt., 102d Engrs., Camp Wadsworth, Spartanburg, S. C.
- Soest, Hugo C.** 1st Lieut., Engr. R. C., Co. A, 25th Engrs., Camp Devens, Ayer, Mass.
- Sourwine, J. A.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Spear, Philip H.** Capt., Engr. R. C. (*Unassigned*), Hastings-upon-Hudson, N. Y.
- Spear, Walter E.** Maj., Q. M. R. C., in Chg. of Utilities, Camp Upton, N. Y.
- Spencer, Herbert.** Capt., Engr. R. C., Camp Lee, Petersburg, Va.
- Sperry, L. N.** 1st Lieut., Engr. R. C., Old Forge, N. Y.
- Sprague, H. M.** 1st Lieut., Engr. R. C., 1600 Fourth Ave., North, Great Falls, Mont.
- Stanford, Homer R.** Civ. Engr., U. S. N. (rank of Commander), Navy Yard, Boston, Mass.
- Stanley, W. E.** 1st Lieut., Engr. R. C., Fort Leavenworth, Kans.
- Stanton, Charles B.** Capt., Engr. R. C., Co. E, 15th Engrs. (Ry.), Am. Exp. Force, France.
- Stanton, W. L.** Private, Co. D, 4th Engrs., Vancouver Barracks, Vancouver, Wash.

- Starrett, William A.** Maj., Engr. R. C.; Chairman, Committee on Emergency Constr., War Industries Board, Council of National Defense, Washington, D. C.
- Stayton, Edward M.** Maj., 110th Engrs., Camp Doniphan, Fort Sill, Okla.
- Stearns, Fred LeRoy.** Lieut., Co. A, 107th Inf., U. S. A., Camp Wadsworth, Spartanburg, S. C.
- Steep, James B.** Capt., Engr. R. C. (*Unassigned*), 918 Majestic Bldg., Indianapolis, Ind.
- Steese, James Gordon.** Lt.-Col., Corps of Engrs., U. S. A.; Asst. to Chf. of Engrs., Washington, D. C.
- Steeves, C. McN.** Lieut., 9th Field Co., Canadian Engrs., B. E. F., France.
- Steinberg, Max.** 1st Lieut., U. S. R., U. S. Coast and Geodetic Survey, Washington, D. C.
- Stem, Clifford H.** 2d Lieut., 312th Engrs., Camp Pike, Little Rock, Ark.
- Stephens, Uel.** Lieut., 57th U. S. Inf., Box 133, Lometa, Tex.
- Stern, Eugene W.** Maj., Engr. R. C., Am. Exp. Force, France.
- Stewart, John T.** Maj., Engr. R. C., Office, Chf. of Engrs., Washington, D. C.
- Stickie, H. W.** Lt.-Col., U. S. A. (*Retired*), U. S. Engr. Office, Pittsburgh, Pa.
- Stiles, Arthur Alvord.** Maj., Engr. R. C., Capitol Station, Austin, Tex.
- Stineman, Norman M.** Capt., Engr. R. C., 1st Co., Barracks No. 50, Fort Leavenworth, Kans.
- Stivers, A. D.** Capt., Engr. R. C., Office of Chf. of Staff, Camp Kearney, San Diego, Cal.
- Storey, Franklin S.** 1st Lieut., Engr. R. C., Am. Exp. Force, France.
- Stowe, H. D.** Capt., Engr. R. C.; Director General of Rys., 734 Fifteenth St., N. W., Washington, D. C.
- Strachan, Joseph J.** Asst. Civ. Engr., U. S. N. (rank of Lieut. (Junior Grade)), Navy Yard, Boston, Mass.
- Strachan, Norman F.** Private, 23d Engrs., Camp Meade, Md.
- Strecker, R. A.** Capt., Engr. R. C., Co. A, 309th Engrs., Camp Zachary Taylor, Louisville, Ky.
- Street, J. Z.** Private, Co. E., 308th Engrs., Camp Sherman, Chillicothe, Ohio.
- Strickler, F. W.** Capt., Engr. R. C. (*Unassigned*); Dist. Engr., Erie R. R. Co., Room 301, K. of C. Bldg., Youngstown, Ohio.
- Strickler, G. B.** Maj., Engr. R. C.; Const. Q. M., Baltimore Depot Warehouses, Baltimore, Md.
- Strickler, T. J.** Capt., Engr. R. C., 3428 Campbell St., Kansas City, Mo.
- Stroebe, George G.** Capt., N. A., Manila, Philippine Islands.

- Stupp, John G.** 1st Lieut., Ord. R. C.; Res., 1837 Kalorama Rd., Washington, D. C.
- Sturtevant, C. W.** Lt.-Col., 15th U. S. Engrs., Am. Exp. Force, France.
- Summers, R. E. J.** 1st Lieut., Engr. R. C., Co. F, 16th U. S. Engrs. (Ry.), Am. Exp. Force.
- Suter, Russell.** Capt., Engr. R. C., Am. Exp. Force, France.
- Sutton, Frank.** Maj., Engr. R. C., 2d Bn., 25th Engrs., Camp Devens, Ayer, Mass.
- Swaren, J. W.** Capt., Engr. R. C.; Engr. Instructor, E. O. T. C., Vancouver Barracks, Vancouver, Wash.
- Swartz, Leon.** Master Engr., 15th U. S. Engrs., Am. Exp. Force, France.
- Sweeney, Harry C.** Capt., Q. M. R. C., Care, Office of Cantonment Constr., 15th and M Sts., Washington, D. C.
- Sykes, George.** Capt., Engr. R. C. (*Unattached*), Am. Exp. Force, France.
- Tainter, F. S.** Maj., Engr. R. C., 60 Wall St., New York City.
- Tate, R. L.** 1st Lieut., Engr. R. C., 303d Engrs., Camp Dix, Wrightstown, N. J.
- Taylor, Edwin A.** Maj., Engr. R. C., Camp Lee, Petersburg, Va.
- Taylor, Harry.** Brig.-Gen., N. A.; Chf. Engr. Officer, A. E. F., Headquarters, Am. Exp. Force, France.
- Taylor, Henry.** Capt., Engr. R. C., 304th Engrs., Camp Meade, Baltimore, Md.
- Taylor, Nelson.** Lieut., U. S. N., U. S. S. *Bridgeport*, Care, Postmaster, New York City.
- Taylor, Seneca V.** Capt., C. A. R. C., U. S. A., Coast Defenses, Portland, Me.
- Taylor, William T.** Capt., Royal Flying Corps, B. E. F., France.
- Taylor, Wyllys H.** Capt., Engr. R. C., 306th Engrs., N. A. (81st Div.), Camp Jackson, Columbia, S. C.
- Ten Hagen, Henry.** 2d Lieut., Engr. R. C., 303d Engrs., Camp Dix, Wrightstown, N. J.
- Tenney, Willis R.** Capt., Engr. R. C. (*Detached*), Am. Exp. Force, France.
- Thomas, Charles D.** Capt., Engr. R. C., Co. B, 507th Engrs., Camp Travis, San Antonio, Tex.
- Thompson, Sanford E.** Maj., Engr. R. C., Progress Section, Office of Chf. of Ordnance, Washington, D. C.
- Thomsen, S. L.** Capt., Engr. R. C., Gilman Apartment D-1, 31st and Calvert Sts., Baltimore, Md.
- Throop, George H.** Capt., Engr. R. C., Co. E, 24th Engrs., Camp Dix, Wrightstown, N. J.
- Thurber, Clinton D.** Civ. Engr., U. S. N. (rank of Lt.-Commander), Bureau of Yards and Docks, Washington, D. C.

- Thurston, Eugene T.** Capt., Engr. R. C., 745 Walker Ave., Oakland, Cal.
- Tilden, Charles Joseph.** Capt., Engr. R. C. (*Unassigned*), Care, Johns Hopkins Univ., Baltimore, Md.
- Todd, Frank Herbert.** Maj., Q. M. R. C., in Chg. of Utilities, Camp Travis, San Antonio, Tex.
- Todd, Oliver J.** Capt. and Adjt., Engr. R. C., 3d Bn., 20th Engrs., Camp American University, Washington, D. C.
- Tolles, F. C.** Private, Engr. Corps, Ohio Div., Camp Sheridan, Montgomery, Ala.
- Topping, Perry.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Townsend, C. McD.** Col., Corps of Engrs., U. S. A., 12th Engrs. (Ry.), Am. Exp. Force, France.
- Trout, Alex Linn.** Capt., Engr. R. C., 2d Co., Fort Leavenworth, Kans.
- True, Albert O.** Capt., Engr. R. C. (*Unassigned*), High St., Rensselaer, N. Y.
- Trueblood, P. McG.** Lieut., U. S. N. R. F., U. S. S. *Wm. Rockefeller*, Care, Postmaster, New York City.
- Tucker, H. F.** Ensign, U. S. N. R. F., Seattle Construction & Dry Dock Co., Seattle, Wash.
- Turley, Jay.** Capt., Engr. R. C., Special Staff Service (Abroad), Am. Exp. Force, France.
- Turner, Daniel Norman.** 2d Lieut., Engr. R. C., 304th Engrs., Camp Meade, Baltimore, Md.
- Turner, Nathaniel Parker.** Capt.; Topographical Officer, 111th Engrs., Camp Bowie, Fort Worth, Tex.
- Tuska, Gustave R.** Maj., Engr. R. C., 68 William St., New York City.
- Tyson, William C.** Capt., Engr. R. C., 6th Co., Fort Leavenworth, Kans.
- Van Buren, Maurice Pelham.** 2d Lieut., Corps of Engrs., U. S. A., New Brighton, N. Y.
- Vandemoer, N. C.** Capt., Engr. R. C., 1113 East 13th Ave., Denver, Colo.
- Vandevanter, Elliott.** Capt., Engr. R. C., Co. D, 503d Engrs., Am. Exp. Force, France.
- Vandervoort, B. F.** Capt., Engr. R. C., 86 Houston Ave., Middletown, N. Y.
- Van Ness, R. A.** Lieut., Engr. R. C., 4th Co., Fort Leavenworth, Kans.
- Van Pelt, Sutton.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Van Suetendael, Achille O.** Capt., Engr. R. C. (*Unassigned*), 1419 F St., N. W., Washington, D. C.
- Van Zile, Harry Lee.** Maj., Engr. R. C., Am. Exp. Force, France.
- Vaughan, Henry F.** Capt., San. Corps, 1st, Camp Travis, San Antonio, Tex.
- Verrill, George E.** Maj., Engr. R. C.; Dist. Engr., in Chg. of Impvts., Yellowstone Park, U. S. Engr. Office, Yellowstone Park, Wyo.

- Vincent, W. H.** 1st Lieut., Engr. R. C., 125 French Ave., Winchester, Ky.
- Wade, George W.** 1st Lieut., Co. D, 2d Bn., 117th Engrs., 42d Div., Am. Exp. Force, France.
- Wadsworth, George R.** Maj., Signal Corps, U. S. A.; Chf. Engr., Naval Aircraft Factory, Navy Yard, Philadelphia, Pa.
- Wadsworth, Henry H.** Maj., Engr. R. C. (*Unassigned*), 405 Custom House, San Francisco, Cal.
- Wagner, John, Jr.** 1st Lieut., Cavalry, U. S. R., Am. Exp. Force.
- Waite, Clement F.** 2d Lieut., Engr. R. C., Vancouver Barracks, Vancouver, Wash.
- Waldron, Albert E.** Col., 35th Engrs., U. S. A., Am. Exp. Force, France.
- Walker, Edward G.** Lieut., Royal N. V. R., 78 Cheyne Court, Chelsea, London, S. W. 3, England.
- Walker, Elton D.** Capt., Engr. R. C., Co. A, 5th U. S. Engrs., Am. Exp. Force, France.
- Walker, Harry Bruce.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Walker, Meriwether Lewis.** Col., Corps of Engrs., U. S. A., 116th Engrs., 41st Div.
- Walker, W. Kemp.** Capt., Engr. R. C. (*Unassigned*), Montpelier, Ohio.
- Wallace, David A.** 1st Lieut., Engr. R. C., 311th Engrs., Camp Grant, Rockford, Ill.
- Walton, H. B.** Capt., Engr. R. C., 312th Engrs., Camp Pike, Little Rock, Ark.
- Ward, George S.** 2d Lieut., Engr. R. C., Co. A, 117th Engrs., Am. Exp. Force, France.
- Ward, Jasper D.** Corporal, Co. C, 55th Inf., Chickamauga Park, Chattanooga, Tenn.
- Ward, Lyman Wise.** Capt., C. A., R. C., 5th Co., Fort Warden, Wash.
- Ware, John.** 1st Lieut., Co. A, 101st Engrs., Am. Exp. Force, France.
- Ware, Norton.** Capt., Engr. R. C., Vancouver Barracks, Vancouver, Wash.
- Warfield, Ralph M.** Civ. Engr., U. S. N. (rank of Lt.-Commander), Navy Aeronautic Station, Pensacola, Fla.
- Waring, C. T.** Maj., Sig. R. C., Constr. Div., Langley Field, Hampton, Va.
- Warner, Elwin S.** Capt., Engr. R. C., Co. B, 301st Engrs., Camp Devens, Ayer, Mass.
- Warren, James G.** Col., Corps of Engrs., U. S. A., 540 Federal Bldg., Buffalo, N. Y.
- Warren, Minton M.** Lieut., Engr. R. C., 301st Engrs.
- Warren, Philip R.** Lieut., Royal Engrs., Care, Sports Club, St. James Sq., London, W., England.

- Washington, W. O.** Capt., Engr. R. C. (*Unassigned*), San Antonio, Tex.
- Watkins, Guy A.** Capt., Engr. R. C., Fort Sill, Okla.
- Watson, George L.** Capt., Engr. R. C., Co. B, 30th U. S. Engrs., Headquarters, Washington, D. C.
- Watson, Winslow B.** Lieut., Co. C, 7th N. Y. Inf. (114th), Camp Wadsworth, Spartanburg, S. C.
- Wagh, William H.** Capt., Engr. R. C.; Engr. Officer, Alaska Road Comm., Juneau, Alaska.
- Way, W. F.** Sergeant, Co. D, 18th Engrs. (Ry.), U. S. Army Post Office No. 705, Am. Exp. Force, France.
- Weaver, C. J.** 1st Lieut., Engr. R. C., Camp Lee, Petersburg, Va.
- Weaver, Frank L.** 1st Lieut., 305th Engrs., Camp Lee, Petersburg, Va.
- Webb, De Witt Clinton.** Civ. Engr., U. S. N. (rank of Lt.-Commander), Navy Yard, Philadelphia, Pa.
- Webb, George H.** Lt.-Col., 16th U. S. Engrs. (Ry.), Am. Exp. Force, France.
- Webb, I. Gano.** Capt., Engr. R. C., Care, Harbor Comm., Ferry Bldg., San Francisco, Cal.
- Webb, Walter Loring.** Maj., Engr. R. C., Am. Exp. Force.
- Webster, Maurice A.** 1st Lieut., Ord. R. C., Aberdeen Proving Ground, Aberdeen, Md.
- Welles, Theodore L., Jr.** 2d Lieut., Engr. R. C., 385 River St., Kingston, Pa.
- Wells, James B.** Private, Headquarters Co., 363d Reg., Camp Lewis, Wash.
- Wenige, Arthur E.** Maj., Engr. R. C., 317th Engrs., Camp Sherman, Chillicothe, Ohio.
- Wenzell, Andrew P.** Capt., Co. F, 16th U. S. Engrs. (Ry.), Am. Exp. Force, France.
- West, Edward Hazzard.** Capt., Engr. R. C., Co. F, 5th Engrs., Corpus Christi, Tex.
- Wheat, G. Neville.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Wheelock, De Forest A.** Col., U. S. A.; Civ. and San. Engr., Warren, Pa.
- Whiteaker, Robert O.** Capt., Troop C, 1st Tex. Cav., Camp Bowie, near Fort Worth, Tex.
- Whitman, Ezra B.** Maj., Q. M. R. C.; Chf. Engr. of Utilities, Camp Meade, Admiral, Md.
- Whitman, Ralph.** Civ. Engr., U. S. N. (rank of Lt.-Commander); Aid on Staff of U. S. Military Governor of Santo Domingo, Santo Domingo, Dominican Republic.
- Whitney, Ralph Edward.** 1st Lieut., Sanitary Corps, N. A., Camp Greenleaf, Fort Oglethorpe, Ga.

- Whitwell, E.** Capt., General Service Staff, British War Office, Robert Treat Hotel, Newark, N. J.
- Wickersham, John H.** Capt., Engr. R. C., Engrs.' Constr. Gang, Phoenix Constr. Co., Am. Exp. Force, France.
- Wiggin, Thomas H.** Capt., Engr. R. C., Care, Gen. Taylor, Am. Exp. Force, France.
- Wild, H. J.** Capt., Engr. R. C., War Dept., Washington, D. C.
- Wilgus, W. J.** Col., Engrs., N. A., Am. Exp. Force, France.
- Willard, N. R.** Capt., Engr. R. C., 3d Co., Camp American University, Washington, D. C.
- Williams, Alan F.** Headquarters Co., 18th Engrs. (Ry.), Am. Exp. Force, France.
- Williams, Gardner S.** Maj., Engr. R. C., Camp Beauregard, Alexandria, La.
- Williams, Samuel W.** Capt., Engr. R. C., 315th Engrs., Camp Travis, Tex.
- Williamson, Harry.** Lieut., Royal Engrs., British Army, 1 Cornwall Ave., Church End, Finchley, London, N. 3, England.
- Williar, Harry D., Jr.** 1st Lieut., 1st U. S. Engrs., Am. Exp. Force, France.
- Willis, Walter John.** Lieut. (EDO), Bldg. 22, Navy Yard, Brooklyn, N. Y.
- Wilson, Everitt W.** Capt., Engr. R. C., Co. A, 304th Engrs., Camp Meade, Md.
- Wilson, Harry P.** Capt., Engr. R. C., Fort Leavenworth, Kans.
- Wilson, Robert B. M.** Capt., Engr. R. C., 311th Engrs., Camp Grant, Rockford, Ill.
- Wing, Charles B.** Maj., 23d Engrs., Camp Meade, Admiral, Md.
- Winn, Walter E.** Lt.-Col., Engr. R. C., 114th Engrs., 39th Div., Camp Beauregard, Alexandria, La.
- Winn, Walter S.** Maj., Engr. R. C., 4th and 1st National Bank Bldg., Nashville, Tenn.
- Winton, Walter Ferrell.** Capt., 14th U. S. Field Artillery, Fort Sill, Okla.
- Wood, Frederic J.** Maj., Engr. R. C., Curtis Bay Ordnance Depot, South Baltimore, Md.
- Woodard, Wilkie.** Capt., Co. H, 35th Engrs., Camp Grant, Rockford, Ill.
- Woodle, Bernon Tisdale.** Capt., 305th Engrs., Care, Depot Engr., Coca Cola Bldg., Baltimore, Md.
- Woolworth, W. H.** Capt., Engr. R. C., Headquarters, 2d Brigade, 1st Div., Am. Exp. Force, France.
- Wright, John Bertram.** Capt., Engr. R. C., P. O. Box 411, Oxford, Mass.
- Wrightson, William D.** Maj.; Chf. of San. Corps, Surgeon-General's Office, War Dept., Washington, D. C.

Yereance, Alex. W. 2d Lieut., Engr. R. C., Co. F, 305th Engrs.,
Camp Lee, Petersburg, Pa.

Yost, Howard McC. Capt., Engr. R. C., 2030 F St., N. W., Wash-
ington, D. C.

Young, Samuel M. Capt., Engr. R. C. (*Unassigned*), 635 Common
St., New Orleans, La.

Zinn, George A. Col., Corps of Engrs., U. S. A., 321 Custom House,
Portland, Ore.

MEMBERSHIP

(From December 7th, 1917, to January 3d, 1918)

ADDITIONS

MEMBERS		Date of Membership.	
AIKENHEAD, JAMES RAY. Engr.-in-Chg., New York Office, Henry R. Kent & Co., 141 Broadway, New York City.....	Assoc. M.	Feb. 7, 1906	
	M.	Nov. 27, 1917	
BASSEL, GUY MANNERING. Constr. Engr., Aluminum Co. of America, Maryville, Tenn.	Assoc. M.	Feb. 6, 1907	
	M.	Nov. 27, 1917	
COLE, CLINTON LLEWELLYN. Cons. Engr., 36 Pearl St., Hartford (Res., 309 Broad St., Meriden), Conn.....	Assoc. M.	May 6, 1908	
	M.	Nov. 27, 1917	
DAVIS, WILBUR WARD. With Boston Transit Comm., 53 Ferdinand St., Melrose Highlands, Mass.		Nov. 27, 1917	
DU MOULIN, WALTER LOUIS. Mech. Engr., Andes Copper Min. Co., Casilla 230, Antofagasta, Chile.....	Jun.	Feb. 1, 1910	
ESTES, FRANKLIN EDWARD. Capt., 17th Ry. Engrs., Am. Exp. Forces, France, Care, Adj. Gen., Washington, D. C.....	Assoc. M.	Feb. 7, 1906	
	M.	June 12, 1917	
FEILD, JULIAN CLARENCE. Cons. Engr., 105 Feild Bldg., Denison, Tex.....	Assoc. M.	Jan. 17, 1916	
	M.	Nov. 27, 1917	
GARLOW, EZRA CLARK. Chf. Engr., Alliance Structural Co., 1818 South Cherry Ave., Alliance, Ohio.....		Nov. 27, 1917	
GOLDSMITH, WILLIAM. Constr. Engr., New York City Dept. of Correction, New Hampton, N. Y.....	Assoc. M.	Mar. 4, 1913	
	M.	Nov. 27, 1917	
WRIGHT, JESSE CLARK. Engr., W. M. Ledbetter & Co., 651 Pacific Elec. Bldg., Los Angeles, Cal.....	Assoc. M.	Mar. 14, 1916	
	M.	Nov. 27, 1917	

ASSOCIATE MEMBERS

ALLAN, WILLIAM SELBY. Gen. Supt. (Standish & Allan), (Res., 648 Cornelia Ave.), Chicago, Ill.....	Jun.	June 4, 1913	
	Assoc. M.	Nov. 27, 1917	
ALLEN, FRANKLIN REA. Capt., Engr. R. C. Co. A, 21st Tr. Bn., 305th Engrs., Camp Lee, Va.....	Jun.	Dec. 3, 1913	
	Assoc. M.	Oct. 9, 1917	
ANDRUS, VINCENT RICHARDSON. Chf. Engr., J. Goldberg & Son, 334 Lathrop Bldg., Kansas City, Mo.....		Nov. 27, 1917	
BARKER, RICHARD McLEAN. Chf. Engr., Lawrence County Road Comm., Lawrenceburg, Tenn.....		Nov. 27, 1917	
BATES, FRANCIS. Div. Engr., M. of W., Los Angeles & Salt Lake R. R., 1332 Fourth Ave., Los Angeles, Cal.		Nov. 27, 1917	

ASSOCIATE MEMBERS (Continued)

	Date of Membership.
BEERBOWER, DUMONT. 1st Lieut., Engr. R. C., } Jun.	April 7, 1915
305th Engrs., Camp Lee, Petersburg, Va. } Assoc. M.	Nov. 27, 1917
BESSELIEVRE, EDMUND BULKLEY. Engr. of Design, Pacific Flush Tank Co., 39 West 39th St., Bayonne, N. J....	Nov. 27, 1917
BIEDINGER, JOHN ROBERT. Engr.-in-Chg. of Design, Board of Rapid Transit Commrs., 2527 Park Ave., Cin- cinnati, Ohio.....	June 11, 1917
BOWE, THOMAS FRANCIS. Association Bldg., Rutherford, N. J.....	Nov. 27, 1917
BULKELEY, OSCAR ERNEST. Supt., Water Dept., Jackson, Mich.	Oct. 9, 1917
BUSH, LEE MARSHALL. Junior Engr., Interstate Commerce Comm., Burlingame, Kans.....	Nov. 27, 1917
CHAPPELL, FRANK WILSON. Designing Engr., Builders Metal Products Co., 729 Burch Bldg., Dallas, Tex....	Nov. 27, 1917
CHURCHILL, ROBERT CARR. Eng. Corps, U. S. A., 813 Nelson St., Roanoke, Va.....	Nov. 27, 1917
CLARK, JAMES HOPKINS. Asst. Engr., S. P. Co., Calipatria, Cal.	Nov. 27, 1917
DIAZ QUINONES, MARINO. Chf. Engr., Cuba Biscuit Co., Bel- ascoain 124, P. O. Box 244, Havana, Cuba.....	Nov. 27, 1917
DICKERSON, WALTER EDWARD. City Mgr., City Hall, Brown- wood, Tex.....	Nov. 27, 1917
DODGE, BERT E. Asst. Bridge Engr., Wisconsin Highway Comm., 2246 Keyes Ave., Madison, Wis.....	Oct. 9, 1917
DOUTHETT, CLAUDE LACY. 6015 Normal Boulevard, Chicago, Ill.	Oct. 9, 1917
EDWARDS, LATTI VANDERION. Prof. of Ry. and Highway Eng., State Coll. of Washington, Pullman, Wash....	Sept. 11, 1917
ELLIS, JOHN RUSSELL. Asst. State Highway Engr., R. F. D. No. 4, Jefferson City, Mo.....	Nov. 27, 1917
FINDLEY, RAYMOND HANSON. Supt. of Track and Roadway, Omaha & Council Bluffs St. Ry., 2501 Kansas Ave., Omaha, Nebr.....	Nov. 27, 1917
FRANKS, JOHN BRANDON. 1st Sergeant, Co. C, 353d Inf., N. A., Camp Funston, Kans.....	Nov. 27, 1917
FRIEL, GRANT. Supt. of Maintenance, Los Angeles County Road Dept., Los Angeles, Cal.....	Nov. 27, 1917
HENDRIE, MATTHEW CHARLES. 2557 Ash St., Denver, Colo..	Nov. 27, 1917
HOLMES, HUGH BROWNING. 66 Broadway, New York City..	Nov. 27, 1917
HUMPHREY, THOMAS PAUL. Designer, Bridge Dept., Kansas City Terminal Ry., 20 East 53d St., Kansas City, Mo.	Nov. 27, 1917
HUNT, JAMES O'CONNOR. Asst. Engr., So. Ry., 411 Henson Bldg., Knoxville, Tenn.....	Nov. 27, 1917

ASSOCIATE MEMBERS (*Continued*)

		Date of Membership.
JEBEJIAN, NEJIB HOVHANNESS.	5903 Walnut St., Philadel- phia, Pa.....	Nov. 27, 1917
JUENGST, WILLIAM GEORGE.	513 Missouri Ave., East St. Louis, Ill.....	Nov. 27, 1917
KNAPP, FRANK HIRAM.	225 Park St., Bridgeport, Conn....	Oct. 9, 1917
LOVE, WILLIAM LEWIS.	Chf. Engr., Howe & Wise, 629 Chronicle Bldg., Houston, Tex.....	Nov. 27, 1917
MACQUEEN, PHILIP OUTERBRIDGE.	Acting Gen. Foreman, Municipal Eng. Div., Panama Canal, P. O. Box 522, Cristobal, Canal Zone, Panama.....	Nov. 27, 1917
MAY, CHARLES CULBERTSON.	5501 Twenty-first Ave., N. E., Seattle, Wash.....	Sept. 11, 1917
MILLER, ROBERT PATCHEN.	Chf. Engr., Union Iron Works of Los Angeles, Inc., 519 Stimson Bldg., Los Angeles, Cal.	Nov. 27, 1917
NORRIS, CLAIRE GREEN.	Res. Engr., A. T. & S. F. R. R., Caney, Kans.....	Nov. 27, 1917
NORRIS, ROBERT.	Superv. Engr. for Gardner S. Williams, Cornwell Bldg., Ann Arbor, Mich.....	Nov. 27, 1917
QUARLES, BEN TARVER.	State House Hotel, Waco, Tex....	Nov. 27, 1917
REDING, JAMES HANDYSIDE.	Capt., Co. A, 112th Engrs., Camp Sheridan, Ala.....	Oct. 9, 1917
RICE, JOHN TURNER.	Capt., Engr. R. C. (<i>Unassigned</i>), Box 452, Imperial, Cal.....	Nov. 27, 1917
RICE, ROGER CUSHING.	Dist. Engr., U. S. Geo- logical Survey, Water Resources Branch, } 25 Federal Bldg., Topeka, Kans..... } Assoc. M.	Jun. Jan. 2, 1912 Oct. 9, 1917
ROBERTS, LEO BOND.	Lieut., Engr. R. C., 25th Engrs., Camp Devens, Mass.....	Nov. 27, 1917
STAEHLE, GILBERT COBB.	Engr., Trussed Con- crete Steel Co., 603 Metropolitan Bank } Bldg., Minneapolis, Minn..... } Assoc. M.	Jun. Dec. 3, 1913 Nov. 27, 1917
STRANEY, JOHN WILLIAM.	Field Engr. on Constr., Braden Copper Co., Rancagua, Chile.....	Sept. 11, 1917
SWARTZ, LEON.	Master Engr., 15th Engrs., } Am. Exp. Force, France..... } Assoc. M.	Jun. April 1, 1914 Oct. 9, 1917
TAMM, ALFRED.	Chf. Engr., United Irrig. Co., Mission, Tex.	Nov. 27, 1917
WAITE, EARLE CHESTER.	Civ. Engr., Bethle- hem Steel Co. (Res., University } Heights), South Bethlehem, Pa..... } Assoc. M.	Jun. Mar. 14, 1916 Nov. 27, 1917
WILSON, LOUIS ARTHUR.	Sibley, Iowa.....	Nov. 27, 1917

JUNIORS

DUNCAN, MALCOLM.	Instr., Civ. Eng. Dept., Univ. of Penn- sylvania, Philadelphia, Pa.....	Nov. 27, 1917
------------------	--	---------------

JUNIORS (<i>Continued</i>)		Date of Membership.
McINTYRE, WILLIAM JOHN. Draftsman, T. A. Edison, Inc., 17 Lakeside Pl., Morristown, N. J.....		Nov. 27, 1917
ROBERTSON, FONZIE EUGENE. Lieut., F. A. R. C., Marlin, Tex.		June 11, 1917
WEEKES, CLIFTON L'ORIGINAL. Care, Jenks B. Jenkins, Val- uation Dept., B. & O. R. R., Baltimore, Md.....		Oct. 9, 1917
WILLIAMSON, LEE HOOMES. Care, Braden Copper Co., Constr. Dept., Rancagua, Chile.....		Oct. 9, 1917

REINSTATEMENTS

ASSOCIATES	Date of Membership.
McINTIRE, THOMAS BURTON.....	Oct. 9, 1917

RESIGNATIONS

MEMBERS	Date of Resignation
BORIGHT, WILLIAM PARSONS.....	Dec. 31, 1917
FITCH, GRAHAM DENBY.....	Dec. 31, 1917
GARRISON, FRANK LYNWOOD.....	Dec. 31, 1917
SMITH, GEORGE PLINY.....	Dec. 31, 1917
WATT, DAVID ALEXANDER.....	Dec. 31, 1917
WILSON, HERBERT MICHAEL.....	Dec. 31, 1917

ASSOCIATE MEMBERS

BARNES, WALTER ESMOND.....	Dec. 31, 1917
BAXTER, DAVID ELDER.....	Dec. 31, 1917
DU BOIS, JULIAN.....	Dec. 31, 1917
ESTEN, HOWARD FOSS.....	Dec. 31, 1917
FRASER, GUY OWEN.....	Dec. 31, 1917
FULLER, ANDREW DANIEL.....	Dec. 31, 1917
GEHRING, HERBERT AUGUST.....	Dec. 31, 1917
GILBERT, GEORGE HERBERT.....	Dec. 31, 1917
HUTCHINS, RALPH.....	Dec. 31, 1917
LANGLEY, JOHN EDWARD.....	Dec. 31, 1917
MALCOMSON, ALFRED SIDNEY.....	Dec. 31, 1917
MEEM, JAMES LAWRENCE.....	Dec. 31, 1917
PFEIFFER, GEORGE WHITFIELD.....	Dec. 31, 1917
RANSON, BIRTRAM WILLARD.....	Dec. 31, 1917
SHANK, LYMAN CHAMBERS.....	Dec. 31, 1917
SHERMAN, HENRY ANDREW.....	Dec. 31, 1917
TURNER, DOUGLAS BARLOW.....	Dec. 31, 1917
UNDERHILL, GRANDISON GRIDLEY.....	Dec. 31, 1917
VICKERS, THOMAS McELDERRY.....	Dec. 31, 1917

ASSOCIATE MEMBERS (*Continued*)

	Date of Resignation
WEIGMAN, WILLIAM JULIUS.....	Dec. 31, 1917
WERBIN, ISRAEL VERNON.....	Dec. 31, 1917
WILLS, ARTHUR JOHN.....	Dec. 31, 1917

ASSOCIATES

CUSHMAN, ALLERTON SEWARD.....	Dec. 31, 1917
PHILLIPS, HENRY AYLING.....	Dec. 31, 1917

JUNIORS

PICKUS, JOSEPH.....	Dec. 31, 1917
PITMAN, LAURENCE MINOT.....	Dec. 31, 1917
SEE, RUSSELL ALVA.....	Dec. 31, 1917

DEATHS

- BROWN, JOHN GRIFFITHS. Elected Associate, July 9th, 1906; Member, September 3d, 1913; died October 22d, 1917.
- HERRICK, HENRY AUGUSTUS. Elected Member, May 7th, 1890; died December 14th, 1917.
- HOBSON, JOSEPH. Elected Member, February 5th, 1890; died December 19th, 1917.
- WELTON, NELSON JAMES. Elected Fellow, January 20th, 1873; died June 5th, 1917.

**Total Membership of the Society, January 3d, 1918,
8 593.**

MONTHLY LIST OF RECENT ENGINEERING ARTICLES OF INTEREST

(September 16th to 30th, 1917)

NOTE.—This list is published for the purpose of placing before the members of this Society, the titles of current engineering articles, which can be referred to in any available engineering library, or can be procured by addressing the publication directly, the address and price being given wherever possible.

LIST OF PUBLICATIONS

In the subjoined list of articles, references are given by the number prefixed to each journal in this list:

- | | |
|---|--|
| (2) <i>Proceedings, Engrs. Club of Phila., Philadelphia, Pa.</i> | (31) <i>Annales de l'Assoc. des Ing. Sortis des Ecoles Spéciales de Gand, Brussels, Belgium, 4 fr.</i> |
| (3) <i>Journal, Franklin Inst., Philadelphia, Pa., 50c.</i> | (32) <i>Mémoires et Compte Rendu des Travaux, Soc. Ing. Civ. de France, Paris, France.</i> |
| (4) <i>Journal, Western Soc. of Engrs., Chicago, Ill., 50c.</i> | (33) <i>Le Génie Civil, Paris, France, 1 fr.</i> |
| (5) <i>Transactions, Can. Soc. C. E., Montreal, Que., Canada.</i> | (34) <i>Portefeuille Economiques des Machines, Paris, France.</i> |
| (6) <i>Journal, Am. Inst. Architects, Washington, D. C., 50c.</i> | (35) <i>Nouvelles Annales de la Construction, Paris, France.</i> |
| (7) <i>Gesundheits Ingenieur, München, Germany.</i> | (36) <i>Cornell Civil Engineer, Ithaca, N. Y.</i> |
| (8) <i>Stevens Indicator, Hoboken, N. J., 50c.</i> | (37) <i>Revue de Mécanique, Paris, France.</i> |
| (9) <i>Industrial Management, New York City, 25c.</i> | (38) <i>Revue Générale des Chemins de Fer et des Tramways, Paris, France.</i> |
| (11) <i>Engineering (London), W. H. Wiley, 432 Fourth Ave., New York City, 25c.</i> | (39) <i>Technische Gemeindeblatt, Berlin, Germany, 0, 70m.</i> |
| (12) <i>The Engineer (London), International News Co., New York City, 35c.</i> | (40) <i>Zentralblatt der Bauverwaltung, Berlin, Germany, 60 pf.</i> |
| (13) <i>Engineering News-Record, New York City, 15c.</i> | (41) <i>Electrotechnische Zeitschrift, Berlin, Germany.</i> |
| (15) <i>Railway Age Gazette, New York City, 15c.</i> | (42) <i>Proceedings, Am. Inst. Elec. Engrs., New York City, \$1.</i> |
| (16) <i>Engineering and Mining Journal, New York City, 15c.</i> | (43) <i>Annales des Ponts et Chaussées, Paris, France.</i> |
| (17) <i>Electric Railway Journal, New York City, 10c.</i> | (44) <i>Journal, Military Service Institution, Governors Island, New York Harbor, 50c.</i> |
| (18) <i>Railway Review, Chicago, Ill., 15c.</i> | (45) <i>Coal Age, New York City, 10c.</i> |
| (19) <i>Scientific American Supplement, New York City, 10c.</i> | (46) <i>Scientific American, New York City, 15c.</i> |
| (20) <i>Iron Age, New York City, 20c.</i> | (47) <i>Mechanical Engineer, Manchester, England, 3d.</i> |
| (21) <i>Railway Engineer, London, England, 1s. 2d.</i> | (48) <i>Zeitschrift, Verein Deutscher Ingenieure, Berlin, Germany, 1, 60m.</i> |
| (22) <i>Iron and Coal Trades Review, London, England, 6d.</i> | (49) <i>Zeitschrift für Bauwesen, Berlin, Germany.</i> |
| (23) <i>Railway Gazette, London, England, 6d.</i> | (50) <i>Stahl und Eisen, Düsseldorf, Germany.</i> |
| (24) <i>American Gas Engineering Journal, New York City, 10c.</i> | (51) <i>Deutsche Bauzeitung, Berlin, Germany.</i> |
| (25) <i>Railway Mechanical Engineer, New York City, 20c.</i> | (52) <i>Rigasche Industrie-Zeitung, Riga, Russia, 25 kop.</i> |
| (26) <i>Electrical Review, London, England, 4d.</i> | (53) <i>Zeitschrift, Oesterreichischer Ingenieur und Architekten Vereines, Vienna, Austria, 70h.</i> |
| (27) <i>Electrical World, New York City, 10c.</i> | (54) <i>Transactions, Am. Soc. C. E., New York City, \$12.</i> |
| (28) <i>Journal, New England Water-Works Assoc., Boston, Mass., \$1.</i> | (55) <i>Transactions, Am. Soc. M. E., New York City, \$10.</i> |
| (29) <i>Journal, Royal Society of Arts, London, England, 6d.</i> | (56) <i>Transactions, Am. Inst. Min. Engrs., New York City, \$6.</i> |
| (30) <i>Annales des Travaux Publics de Belgique, Brussels, Belgium, 4 fr.</i> | |

- (57) *Colliery Guardian*, London, England, 5d.
 (58) *Proceedings*, Engrs.' Soc. W. Pa., 2511 Oliver Bldg., Pittsburgh, Pa., 50c.
 (59) *Proceedings*, American Water-Works Assoc., Troy, N. Y.
 (60) *Municipal Engineering*, Indianapolis, Ind., 25c.
 (61) *Proceedings*, Western Railway Club, 225 Dearborn St., Chicago, Ill., 25c.
 (62) *American Drop Forger*, Thaw Bldg., Pittsburgh, Pa., 10c.
 (63) *Minutes of Proceedings*, Inst. C. E., London, England.
 (64) *Power*, New York City, 5c.
 (65) *Official Proceedings*, New York Railroad Club, Brooklyn, N. Y., 15c.
 (66) *Gas Journal*, London, England, 6d.
 (67) *Cement and Engineering News*, Chicago, Ill., 25c.
 (69) *Der Eisenbau*, Leipzig, Germany.
 (70) *Journal*, Iron and Steel Inst., London, England.
 (71a) *Carnegie Scholarship Memoirs*, Iron and Steel Inst., London, England.
 (72) *American Machinist*, New York City, 15c.
 (73) *Electrician*, London, England, 18c.
 (74) *Transactions*, Inst. of Min. and Metal., London, England.
 (75) *Proceedings*, Inst. of Mech. Engrs., London, England.
 (76) *Brick*, Chicago, Ill., 20c.
 (77) *Journal*, Inst. Elec. Engrs., London, England, 5s.
 (78) *Beton und Eisen*, Vienna, Austria, 1, 50m.
 (79) *Forscherarbeiten*, Vienna, Austria.
 (80) *Tonindustrie Zeitung*, Berlin, Germany.
 (81) *Zeitschrift für Architektur und Ingenieurwesen*, Wiesbaden, Germany.
 (83) *Gas Age*, New York City, 15c.
 (84) *Le Ciment*, Paris, France.
 (85) *Proceedings*, Am. Ry. Eng. Assoc., Chicago, Ill.
 (86) *Engineering and Contracting*, Chicago, Ill., 10c.
 (87) *Railway Engineering and Maintenance of Way*, Chicago, Ill., 10c.
 (88) *Bulletin of the International Ry. Congress Assoc.*, Brussels, Belgium.
 (89) *Proceedings*, Am. Soc. for Testing Materials, Philadelphia, Pa., \$5.
 (90) *Transactions*, Inst. of Naval Archts., London, England.
 (91) *Transactions*, Soc. Naval Archts. and Marine Engrs., New York City.
 (92) *Bulletin*, Soc. d'Encouragement pour l'Industrie Nationale, Paris, France.
 (93) *Revue de Métallurgie*, Paris, France, 4 fr. 50.
 (95) *International Marine Engineering*, New York City, 20c.
 (96) *Canadian Engineer*, Toronto, Ont., Canada, 10c.
 (98) *Journal*, Engrs. Soc. Pa., Harrisburg, Pa., 30c.
 (99) *Proceedings*, Am. Soc. of Municipal Improvements, New York City, \$2.
 (100) *Professional Memoirs*, Corps of Engrs., U. S. A., Washington, D. C., 50c.
 (101) *Metal Worker*, New York City, 10c.
 (102) *Organ für die Fortschritte des Eisenbahnwesens*, Wiesbaden, Germany.
 (103) *Mining and Scientific Press*, San Francisco, Cal., 10c.
 (104) *The Surveyor and Municipal and County Engineer*, London, England, 6d.
 (105) *Metallurgical and Chemical Engineering*, New York City, 25c.
 (106) *Transactions*, Inst. of Min. Engrs., London, England, 6s.
 (107) *Schweizerische Bauzeitung*, Zürich, Switzerland.
 (108) *Southern Machinery*, Atlanta, Ga., 10c.
 (109) *Journal*, Boston Soc. C. E., Boston, Mass., 50c.
 (110) *Journal*, Am. Concrete Inst., Philadelphia, Pa., 50c.
 (111) *Journal of Electricity, Power and Gas*, San Francisco, Cal., 25c.
 (112) *Internationale Zeitschrift für Wasser-Versorgung*, Leipzig, Germany.
 (113) *Proceedings*, Am. Wood Preservers' Assoc., Baltimore, Md.
 (114) *Journal*, Institution of Municipal and County Engineers, London, England, 1s. 6d.
 (115) *Journal*, Engrs.' Club of St. Louis, St. Louis, Mo., 35c.
 (116) *Blast Furnace and Steel Plant*, Pittsburgh, Pa., 15c.

LIST OF ARTICLES

Bridges.

Centre Street Bridge, Calgary, Alberta.* George W. Craig. (5) Jan.-June.
 Pneumatic Caisson Work for the Foundations of the Pettitcodiac River Bridge Piers, at Moncton, N. B.* E. M. Archibald. (5) Jan.-June.
 Philadelphia Bridges, Past, Present, and Future.* Wilmer Z. Kline. (2) Aug.
 Completion of the Quebec Bridge.* (18) Sept. 29.

Electrical.

The Mathematical Treatment of the Magnetomotive Force of Armature Windings.* B. Hague. (77) July.
 The Magnetic Shielding of Large Spaces.* Ernest Wilson. (77) July.
 Pressure Drop Curves for Copper Overhead Lines.* G. N. Wright. (77) July.
 Transmission Line Design.* F. K. Kirsten. (42) Aug.

* Illustrated.

Electrical—(Continued).

- Value of Fuel Economy in the Power Plant.* Reginald Trautschold. (9) Aug.
 Notes on the Electric Storage Battery.* Edward Wanton Smith. (Read before the Philadelphia Section of the Am. Chemical Soc.) (2) Sept.
 Design, Construction and Tests of an Artificial Power Transmission Line for the Telluride Power Company of Provo, Utah.* George H. Gray. (42) Sept.
 A Recent "Union Electric" Development. John Hunter. (115) Sept.
 Electrical Operation of Bloom Shears.* G. E. Stoltz. (116) Sept.
 Central-Station Service. Thomas Robson Hay. (9) Sept.
 Insuring Continuous Power Service. D. D. Ewing. (17) Sept. 1.
 Voltage Control of Commutating—Pole Synchronous Converters.* J. L. Burnham. (64) Sept. 4.
 Leading Plants in Evansville.* Thomas Wilson. (64) Sept. 4.
 On the Wave-Lengths and Radiation of Loaded Antennae. Balth. Van Dier Pol. (Abstract of paper read before the Physical Soc. of London.) (73) Sept. 7.
 Tests on Oil Switches.* Georg Stern and Josef Biemanns. (Abstract of article in *Elektrotechnische Zeitschrift*, Nos. 46 and 47, Vol. 37.) (73) Sept. 7.
 Repetitions of E. M. F. in Armature Windings.* C. C. Hawkins. (73) Sept. 7.
 The Modernization of Stuart Street Generating Station, Manchester. (26) Sept. 7.
 Costs in Electric Furnace Operation. F. T. Snyder. (Abstract of paper in *Electrical Review*.) (26) Sept. 7.
 Power Plant of the Rialto Building.* A. J. Dixon. (64) Sept. 11.
 The Protection of Cables Against Electrolysis. (Abstract of article in *Annales des Postes, Télégraphes et Téléphones*.) (73) Sept. 14.
 The High-Tension Magneto with Special Reference to the Ignition of Aeroplane Engines.* A. P. Young. (Abstract of paper read before the Aeronautical Soc.) (73) Sept. 14.
 Electrodes for Electric Furnaces: Their Manufacture, Properties, and Utilization. (26) Sept. 14.
 Electricity Supply at Redditch.* (73) Sept. 14.
 Electricity at the Bunker Hill & Sullivan.* A. H. Halloran. (111) Sept. 15.
 Fires in Transformers. M. A. Walker. (64) Sept. 18.
 Manufacture of Electric Motors.* C. W. Starker. (72) Serial beginning Sept. 20.
 On the Calculation of the Coupling Coefficient of Two Coaxial Flat Spiral Coils.* P. Baillie. (73) Sept. 21.
 The Barcelona Traction, Light and Power Company.* A. Huguenin. (11) Sept. 21.
 The Pilotron Oscillator.* (26) Sept. 21.
 The Pressure of the Trolley on the Overhead Wire.* E. Stocker. (73) Sept. 21.
 High-Tension Current in Mines.* J. R. Brown. (From paper read before the Kentucky Min. Inst.) (57) Sept. 21.
 A New High-Tension Meter.* P. F. Dufour. (Abstract of paper in *Rev. Gén. de l'Electricité*.) (26) Sept. 21.
 Magnet-Type Elevator Controller.* J. Gintz, Jr.* (64) Sept. 25.
 The Limitation of Short-Circuit Currents in the Power Station at Golpa.* G. Klingenberg. (Abstract of article in *Elektrotechnische Zeitschrift*, No. 50, 1916.) (73) Sept. 28.
 Curiosities of Early Mains Work. G. W. Stubbings. (26) Sept. 28.
 Direct-Current Balancers.* W. A. E. M. (26) Sept. 28.
 Effect of Barometric Pressure on Temperature Rise of Self-Cooled Transformers.* V. M. Montsinger. (73) Sept. 28.
 Some Practical Experiences with Tough Rubber Compound Cables. W. Ellerd-Styles. (26) Sept. 28.
 British Westinghouse Turbo-Alternators.* (73) Sept. 28.
 Construction and Test of Two-Section Steel Pole.* W. C. Lancaster. (17) Sept. 29.

Marine.

- History of the Boston Dry Dock. James W. Rollins. (109) Sept.
 Industrial Management Principles in Shipyard Practice.* Wm. M. Kennedy. (9) Sept.
 American Standard Single-Screw Steel Steamships.* (From *International Marine Engineering*.) (11) Sept. 7.
 On the Analysis of the Results of Inclining Experiments.* C. Frodsham Holt. (11) Sept. 28.
 The Failure of Boiler Plates in Service, and Investigation of the Stresses that Occur in Riveted Joints.* E. B. Wolff. (Abstract of paper read before the Iron and Steel Inst.) (11) Sept. 28.

Mechanical.

- Reclaiming the Scrap Pile.* R. P. Crawford. (9) Aug.
 Installing Equipment in Concrete Buildings.* H. Collin Campbell. (9) Aug.
 Layout of Machine Tools for a Large Light Manufacturing Plant.* David J. Matlack. (2) Aug.
 Chemical Engineering Aspect of Renovating a Sulphide Mill.* Hugh K. Moore. (Paper read before Am. Inst. of Chemical Engrs.) (105) Aug. 1.

* Illustrated.

Mechanical—(Continued).

- The New Carbonizing Plant at Macon, Ga.* S. Bent Russell. (83) Aug. 1.
 An Open Construction of Carbonizing Plant at Macon, U. S. A.* (66) Aug. 28.
 Manufacture of Nitrate of Ammonia by Electric Power at Coke-Oven Plants. E. Kilburn Scott. (Abstract of paper read before Coke-Oven Managers' Assoc.) (66) Aug. 7; (26) Sept. 7.
 Intermittent Vertical Retorts for Medium-Sized and Small Gas Undertakings.* F. G. Ambler. (Abstract of paper read before the Irish Assoc. of Gas Managers.) (66) Aug. 14.
 Suggested Improvements in the Manufacture of Silica Brick.* C. E. Nesbitt and M. L. Bell. (Abstract of paper read before the Am. Soc. for Testing Materials.) (105) Aug. 15; (116) Sept.
 Prices of Gas to Different Classes of Consumers. J. E. McLeod. (Abstract of paper read before the Missouri Assoc. of Public Utilities.) (66) Aug. 21.
 The "Direct" Process for the Manufacture of Sulphate of Ammonia.* W. S. Curphey. (66) Aug. 28.
 A Study of Graphite and of Its Compounds for Lubricating Purposes. Christopher H. Bierbaum. (55) Sept.
 Plant of the Standard Portland Cement Co., Leeds, Ala.* (67) Sept.
 Rolls for Edging Flat Bar Iron or Steel.* W. S. Standiford. (116) Sept.
 Nickel-Chrome Forgings for U. S. Weapons.* A. W. Peterson and H. E. Parkison. (62) Sept.
 Elements of Roll Pass Design.* W. Trinks. (116) Sept.
 Some Suggestions on Thermit Welding.* J. F. Perrith. (62) Sept.
 Process of Forming Separator Screw Disc. (62) Sept.
 Fallacies Regarding Malleable Iron.* A. H. Weston. (25) Sept.
 Conserving 80 000 000 Pounds of Industrial Wastes a Year.* W. Rockwood Conover. (9) Sept.
 Coal By-Products and the War. A. S. Knowles. (115) Sept.
 Boiler-House Design.* Herbert E. Birch. (9) Serial beginning Sept.
 The Use and Abuse of Steel for Aircraft.* R. K. Bagnall-Wild and W. W. Birch. (62) Sept.
 Design of Heavy Helical Springs.* G. S. Chiles and R. G. Kelley. (25) Sept.
 Adapting the Motor Truck to Its Work.* (67) Sept.
 Uniflow-Engine Automatic Exhaust Valve.* (64) Sept. 4.
 The Chemistry of Coal. M. Rouland. (Abstract of translation of address before the Société Technique du Gaz en France, published in *Journal des Usines à Gaz*.) (66) Sept. 4.
 Testing and Specifying Cotton Belts.* James F. Hobart. (64) Sept. 4.
 McEwen High-Compression Oil Engine.* (64) Sept. 4.
 Airplane Engine Repairs at Toronto. Fred H. Colvin. (73) Sept. 6.
 Spot Welding at the Chalmers Plant.* (72) Sept. 6.
 The Panama Canal Forge Shops.* Frank A. Stanley. (72) Sept. 6.
 Design and Use of Twisted Spur Gears.* L. D. Hayes. (72) Sept. 6.
 The Refractory Properties of Silica Bricks. H. H. Le Chatelier and B. Bogitch. (Paper read before the Académie des Sciences.) (57) Sept. 7.
 Operation of Diaphragm Radiator Valves.* F. A. De Boos. (101) Sept. 7.
 The Dehydration of Tar.* G. H. Sharples. (Abstract of paper read before North British Assoc. of Gas Managers.) (66) Sept. 11.
 Low-Temperature Distillation of Inferior Coals.* T. F. Winmill. (66) Sept. 11.
 Improved Efficiency Turbine.* (64) Sept. 11.
 Continuous Vertical Retorts in a Fifty-Million Works. H. G. Ritchie. (Abstract of paper read before North British Assoc. of Gas Managers.) (66) Sept. 11.
 Building a Precision Lathe.* M. E. Hoag. (72) Sept. 13.
 The Care and Upkeep of Band-Saws.* (72) Sept. 13.
 Application and Use of the Booking Type of Core Box.* J. V. Hunter. (72) Sept. 13.
 Coal Gas for Motor Vehicles.* (12) Sept. 14.
 Some Notes on Nitrating Kettles with an Example of Acetylation Apparatus.* Frederick Pope. (105) Sept. 15.
 A Gas-Fired Welding Furnace Installation.* Charles E. Richardson. (105) Sept. 15.
 The Synthesis of Ammonia and the Oxidation of Ammonia to Nitric Acid. Edward B. Maxted. (105) Sept. 15.
 An Experiment in Scrubbing Carburetted Water Gas for Recovering Aromatics.* Robert J. Moore and Gustav Egloff. (105) Sept. 15.
 Smoke Reduction in Boiler Furnaces.* Joseph Goder. (64) Sept. 18.
 Draft in Boiler Practice.* H. F. Lawrence. (64) Sept. 18.
 Mean Effective Pressure of Ammonia Compressors.* Carl J. Jefferson. (64) Sept. 18.
 Efficiencies of Steam-Turbine Cycles.* C. F. Hirschfeld.* (64) Sept. 18.
 Relation of Press Stroke to the Life of a Die.* E. F. Creager. (72) Sept. 20.
 Location of Cam Followers.* Arthur B. Babbitt. (72) Serial beginning Sept. 20.
 Elements of Gagemaking.* C. A. Macready. (72) Sept. 20.
 Attachment for Cutting Cams and Profiles.* William C. Roemer. (72) Sept. 20.
 On the Critical Speeds of Loaded Shafts.* Wm. M. Wallace. (12) Sept. 21.

* Illustrated.

Mechanical—(Continued).

- Notes on the Present Knowledge and Practice in Regard to the Briquetting of Iron Ores.* Guy Barrett and T. B. Rogerson. (11) Sept. 21; (12) Sept. 28.
- The Status and Prospect of Gas Lighting. W. J. Serrill. (66) Sept. 25.
- Starting the Curtis Vertical Turbine.* (64) Sept. 25.
- The Fay Automatic Ring-Gear Machine.* (72) Sept. 27.
- Pattern Match Plates.* J. V. Hunter. (72) Sept. 27.
- The Manufacture of Hardened Thread Gauges.* G. Doorakkers. (12) Sept. 28.
- Coal Briquetting: with Special Reference to Anthracite Coal. J. A. Yeadon. (Abstract of paper read before South Wales Inst. of Engrs.) (57) Sept. 28.
- Principles and Methods of a New System of Gas Firing.* A. C. Ionides. (Paper read before the Inst. of Metals.) (11) Sept. 28; (66) Sept. 25.
- Heat Treatment of Carburized Parts. W. C. Peterson. (62) Oct.
- Correcting Faulty Forge Construction.* James C. Cran. (62) Oct.
- The Evolution of the Forging Press.* Frank I. Ellis. (62) Oct.
- Heat Treating and Hardening of Gears. W. H. Phillips. (Paper read before the Am. Gear Manufacturers' Assoc.) (62) Oct.
- Organisation Scientifique de l'Usinage; Travaux de Percage; Recherche de la Meillure Utilisation des Aciers à Outils.* P. Denis. (33) Serial beginning Oct. 6.
- La Transformation des Huiles Minérales Lourdes en Essences et en Produits Légers. (33) Oct. 13.
- Machines à Rainurer et à Mortaiser, Système Newton.* (33) Oct. 13.
- Utilisation Après la Guerre des Usines Créées pour les Besoins de la Défense Nationale; Fabrication d'Objets Emboutis.* M. Lunet. (33) Oct. 27.
- Die Schweiz. Prüfanstalt für hydrometrische Flügel Papiermühle bei Bern.* (107) Sept. 29.

Metallurgical.

- Some Studies of the Methods of Recovering Antimony from Its Ores by Volatilization Processes. J. A. DeCew. (5) Jan.-June.
- Operating Details of Zinc Retort Furnaces.* Edward Mackay Johnson. (105) Aug. 1.
- The Composition of Shell Steel.* Reginald Trauttschold. (105) Aug. 1.
- Some Notes on Sulfonating Kettles.* Frederick Pope. (105) Aug. 15.
- A Short History of the Refining Industry. (105) Aug. 15.
- By-Products in Electrolytic Copper Refining. Laurence Addicks. (105) Aug. 15.
- Skip Hoists for Automatic Handling.* H. V. Schiefer. (116) Sept.
- Steel, Its Selection and Treatment.* John F. Keller. (62) Serial beginning Sept.
- Steel Production by the Duplex Process.* J. E. Furst. (116) Sept.
- Ingot Pouring Device Reduces Piping.* Alfred M. Staehle. (116) Sept.
- Lime as a Component of Furnace Slag.* Wallace G. Imhoff. (116) Sept.
- Open Hearth Furnace of Large Capacity.* Robert H. Irons. (116) Sept.
- The Electrolysis of Fused Cerium Chloride. M. deKay Thompson. (105) Sept. 1.
- Sulphuric Acid from Blende.* H. M. Ridge. (105) Sept. 1.
- Flash Annealing Large Projectiles.* Edward A. Pilnacek. (105) Sept. 1.
- Zinc Furnace Temperatures. Edward Mackay Johnson. (105) Serial beginning Sept. 15.
- The Resilience Test. Henry M. Howe. (105) Sept. 15.
- Hardness and Hardening.* T. Turner. (Paper presented before the Inst. of Metals.) (12) Sept. 21.
- Experiments on the Fatigue of Brasses.* P. Parker Haigh. (11) Sept. 21.
- Notes on the Heat Treatment of Grey Cast Iron.* J. E. Hurst. (Abstract of paper read before Iron and Steel Inst.) (11) Sept. 28.
- The Acid Open-Hearth Process.* F. Rogers. (Paper presented before the Iron and Steel Inst.) (12) Sept. 28.
- Les Points Critiques de Refroidissement des Aciers Auto-Trempants et la Formation de la Troostite et de la Martensite.* P. Dejean. (93) Sept.

Military.

- Mobile Armament for Defense.* Andrew M. Coyle. (55) Aug.
- The Composition of Shell Steel.* Reginald Trauttschold. (105) Aug. 1.
- Nickel-Chrome Forgings for U. S. Weapons.* A. W. Peterson and H. E. Parkison. (62) Sept.
- Methods Employed in the Construction of Camp Grant Cantonment, Rockford, Ill.* (60) Sept.
- Entrenchments and Camouflage.* (100) Sept.
- Cars in Use Behind the Trenches.* (25) Sept.
- Flash Annealing Large Projectiles.* Edward A. Pilnacek. (105) Sept. 1.
- Airplane Engine Repairs at Toronto. Fred H. Colvin. (72) Sept. 6.
- U. S. Automatic Machine Rifle-Caliber 30, Model 1909.* (72) Sept. 13.
- Water Supply in a National Guard Camp.* (101) Sept. 28.

* Illustrated.

Mining.

- The Spontaneous Firing of Coal. J. S. Haldane. (106) Aug.
 Acetylene Mine Lamps.* William Maurice. (106) Aug.
 The Texas Trap Rock Company's Plant.* (67) Sept.
 Magnetic Control as Applied to Large Mine Hoists.* E. C. Gooch. (Abstract of article in *General Electric Review*.) (73) Sept. 7.
 Gob Fires in Natal. J. E. Vaughan and F. A. Steart.* (From *Journal of the Chemical, Metallurgical, and Min. Soc. of South Africa*.) (57) Sept. 7.
 Sinking Through Wet Strata at Great Depths. H. Müller. (From *Glückauf*.) (57) Sept. 14.
 Electricity at the Bunker Hill & Sullivan.* A. H. Halloran. (111) Sept. 15.
 High-Tension Current in Mines.* J. R. Brown. (From paper read before the Kentucky Min. Inst.) (57) Sept. 21.
 Observations on Modern Coal Washing.* G. H. Elmore. (57) Sept. 28.
 Comparative Tests of Hammer Drill Bits. C. R. Forbes and J. C. Barton. (57) Sept. 28.

Miscellaneous.

- The Engineer's Destiny. H. W. Buck. (42) Aug.
 Analyzing Manufacturing Costs to Increase Profits.* C. W. Starker. (9) Aug.
 Code of Lighting Factories, Mills and Other Work Places.* (From *Transactions of the Illuminating Eng. Soc.*) (2) Aug.
 Factory Purchasing System Methods and Records. H. A. Russell. (9) Aug.
 Valuation and Appraisal of Public Service Property. A. S. B. Little. (83) Serial beginning Aug. 1.
 Manufacturing Methods. H. S. Gantt. (9) Sept.
 Modern Business Systems and the Engineer. E. J. McCaustland. (115) Sept.
 Monthly and Yearly Inventories. H. A. Russell. (9) Sept.
 The Position of the Engineer in the Community and His Relations to the Contractor. S. M. Swaab. (2) Sept.
 How to Deal Successfully with Women in Industry.* C. B. Lord. (9) Sept.
 Concentrated Potash a By-Product of Cement Mill.* (67) Sept.
 The Chemistry of Cellulose and Its Important Industrial Applications. H. S. Mork. (3) Sept.
 Radiation and the Electron.* R. A. Millikan. (3) Sept.
 Overhead Charges as Applied to Appraisal Reports. Allen F. Brewer. (9) Sept.
 The Estimation of Petroleum Reserves.* Robert W. Pack. (105) Sept. 1.
 Fair Value and the Rate-Base. C. E. Grunsky, Jr. (111) Sept. 1.
 Gas from Wood. M. Rothenbach. (Abstract of translation of article in *Journal de Usines à Gaz*.) (66) Sept. 11.
 Engineering Publicity. D. Ross Kennedy. (26) Sept. 14.
 Details of Heating and Ventilating Work.* Frank G. McCann. (101) Sept. 14.
 Industrial Research and the Colleges. A. E. Kennelly. (Abstract.) (42) Oct.
 Industrial Research and Its Relation to University and Governmental Research. C. E. Skinner. (42) Oct.
 L'Observation et la Mesure des Incapacités provenant des Blessures de Guerre.* Jules Amar. (33) Oct. 6.

Municipal.

- Report on Public Improvements to the St. Louis Commercial Club and the St. Louis Chamber of Commerce. (115) July.
 Government Housing Scheme, Well Hall, Eltham, Kent.* (6) Sept.
 Neugestaltung von Miethaus-Baublöcken im "Alten Westen" von Berlin.* (107) Oct. 27.

Railroads.

- Canada's Railway Problem and Its Solution.* W. F. Tye. (5) Jan.-June.
 Conversion of Consolidation Type Locomotives to Eight-Wheel Switchers.* F. J. Carty. (25) Sept.
 Emergency Work at a Washout.* (87) Sept.
 Locomotive Feedwater Heating.* Geo. M. Basford. (55) Sept.
 Metal Alloys Used in Locomotives. G. L. Hoyt. (55) Sept.
 Influence of Gage Length on Elongation in Drop Test of Rails. M. H. Wickhorst. (85) Sept.
 Mill Inspections of Rail in 1915 and 1916. M. H. Wickhorst. (85) Sept.
 Modern Locomotive Practice. T. A. Foque. (55) Sept.
 Painting and Varnishing of Passenger Cars.* Thomas Marshall. (Abstract of paper read before Canadian Railway Club.) (21) Sept.
 Powdered Coal for the Railways. (Abstract of report presented before International Railway Fuel Assoc.) (25) Sept.
 Providing Better Bunk Cars for Men. (87) Sept.
 Rail Failure Statistics for 1916. M. H. Wickhorst. (85) Sept.
 Rebuilding a Tunnel Roof Through Sand.* (87) Sept.

* Illustrated.

Abstracts

The following abstracts are from the Journal of the American Medical Association, published weekly, and are intended to give a summary of the contents of the issue in which they appear. They are arranged in alphabetical order of the author's name, and are given in the form of a list of the titles of the articles, with a brief statement of the results of the investigations.

Abstracts of the original articles.—The following abstracts are from the original articles published in the Journal of the American Medical Association, and are intended to give a summary of the contents of the issue in which they appear. They are arranged in alphabetical order of the author's name, and are given in the form of a list of the titles of the articles, with a brief statement of the results of the investigations.

Abstracts

The following abstracts are from the original articles published in the Journal of the American Medical Association, and are intended to give a summary of the contents of the issue in which they appear. They are arranged in alphabetical order of the author's name, and are given in the form of a list of the titles of the articles, with a brief statement of the results of the investigations.

Abstracts

The following abstracts are from the original articles published in the Journal of the American Medical Association, and are intended to give a summary of the contents of the issue in which they appear. They are arranged in alphabetical order of the author's name, and are given in the form of a list of the titles of the articles, with a brief statement of the results of the investigations.

Railroads—(Continued).

- Six-Wheel Truck for Virginian 120-Ton Coal Car.* (25) Sept.
 Service Records of Crossing Foundations.* (87) Sept.
 Removing Weeds from C. Track by Burning. C. R. Knowles. (87) Sept.
 Tests of Manganese Steel Rails. M. H. Wickhorst. (85) Sept.
 The Locomotive Firebox and Combustion Chamber.* J. T. Anthony. (55) Sept.
 The Poppet-Valve Steam Engine.* Siegfried Rosenzweig. (55) Sept.
 The Relation of the Railroad to the City Water Plant. C. R. Knowles. (59) Sept.
 Ventilation of the Connaught Tunnel, Canadian Pacific Railway.* (21) Sept.
 Wind Resistance as Affecting the Motion of a Train.* H. C. Webster. (21) Sept.
 Cars in Use Behind the Trenches.* (25) Sept.
 A Virginian 120-Ton Coal Car.* B. W. Kadel. (25) Sept.
 Modernized Motive Power, Philadelphia & Reading Railway.* (18) Sept. 1.
 Freight Locomotives for the Chicago Burlington & Quincy Railroad.* (18) Sept. 1.
 Beach Oil-Electric Car for the Nashville, Chattanooga & St. Louis Railway.* (18) Sept. 1.
 The Handling of Less-Than-Carload Freight in Warehouses and on Platforms on the M. K. & T. Ry. J. W. Kendrick. (Abstract of report of investigations.) (18) Sept. 1.
 The Whiteson-Corvallis Electrification.* Paul Lebenbaum. (111) Sept. 1.
 Mont-Cenis (Italy) Railway Electrification.* Lucien Pahin. (17) Sept. 1.
 Asphalt Cushion is Principal Feature of New Mechanical Tie. (17) Sept. 1.
 Rearranging Facilities for Receiving Coal by Rail Instead of by Water.* (17) Sept. 8.
 The Light Signal. A. G. Shaver. (18) Sept. 8.
 Terminal Facilities. R. J. White. (Abstract of paper read before Niagara Frontier Car Men's Assoc.) (18) Sept. 8.
 Mikado Type Locomotive, Louisville & Nashville Railroad.* Millard F. Cox. (18) Sept. 8.
 Items of Cost in Renewing Rail. Russell A. Wentworth. (Abstract of paper published in *Maintenance of Way Bulletin*.) (18) Sept. 8.
 Construction Work on the Union Pacific Railroad.* (18) Sept. 8.
 Over the Pits in a Railroad Shop.* Frank A. Stanley. (72) Sept. 13.
 Reduction of Railway Operating Costs by Use of Automatic Substations.* W. D. Bearce. (17) Sept. 15.
 Safe Handling of Track, Bridge and Building Material.* J. T. Broderick. (Abstract of paper read before National Safety Council.) (18) Sept. 15.
 New Passenger Terminal of the D. L. & W. R. R. at Buffalo.* (18) Sept. 15.
 Montowese Classification Yard, New York, New Haven & Hartford R. R. (18) Sept. 15.
 Firebox Temperature Tests, Texas & Pacific Railway.* (18) Sept. 15.
 Methods of Loading, Bracing and Stowing L. C. L. Freight, Atchison, Topeka & Santa Fe Railway.* Charles E. Parks. (13) Serial beginning Sept. 22.
 Inspection and Renewal of Ties in Track.* (Abstract of a Committee Report of Roadmasters' and Maintenance of Way Assoc.) (18) Sept. 22.
 A 120-Tons Capacity Gondola Car for the Virginian Railway.* (18) Sept. 22.
 The Shrinkage Allowance for Locomotive Tires.* E. L. Ahrons. (12) Sept. 28.
 La Température Maximum des Roches dans les Principaux Tunnels. (33) Oct. 27.
 Von der Gafsa-Bahn.* S. Abt. (107) Oct. 27.

Railroads, Street.

- Street Railway Negative Return System for the Mitigation of Electrolysis.* L. A. Herdt. (5) Jan.-June.
 Oil-Electric Motor Car.* (25) Sept.
 Kerosene-Electric Car Having a Large Reserve Power.* (17) Sept. 1.
 Purchased Power for Springfield (Mass.) Street Railway.* (17) Sept. 8.
 Submarine Tunnel at Boston, Mass.* (12) Sept. 14.
 The New Standard Hodenpyl-Hardy Car.* (17) Sept. 15.
 Rebuilding Interurban Cars to Reduce Weight.* R. N. Hemming. (17) Sept. 15.
 Mazda Car Lamps as Voltage Regulators for Incandescent Headlights. J. R. McFarlin. (17) Sept. 15.
 Spokane's Operation of Large One-Man Cars with Smoking Compartments.* (17) Sept. 22.
 Meeting the Menace of the Private Automobile at Corpus Christi.* (17) Sept. 22.
 The Design and Development of the Safety Car. C. O. Birney. (17) Sept. 22.
 The Light-Weight Safety Car and Car Standardization. W. H. Heulings, Jr. (17) Sept. 22.
 One-Man Car Operation in Calgary, Alberta.* Thomas H. McCauley. (17) Sept. 22.
 Operation of Frequent Service Cars in Large Cities.* J. C. Thirlwall. (17) Sept. 22.
 The "Quick Service Car". F. W. Hild. (17) Sept. 22.
 Working Out the "More Service" Idea in Washington.* (17) Sept. 22.

* Illustrated.

Railroads, Street—(Continued).

- A Railway without an Attorney.* (17) Sept. 22.
 Development of Light-Weight Safety Car on Illinois Traction System.* (17) Sept. 22.
 Equipment of the Light-Weight, Safety Cars.* (17) Sept. 22.
 Fort Worth's Revolution in Service.* (17) Sept. 22.
 Street Railway Employment in the United States. Thomas Conway. (Abstract of *Bulletin 204*, U. S. Bureau of Labor Statistics.) (17) Sept. 29.

Roads and Pavements.

- Sheet Asphalt Pavements.* T. Linsey Crossley. (5) Jan.-June.
 Present Practice and Regulations Pertaining to Pavement Openings. Arthur H. Blanchard. (60) Sept.
 Street and Road Pavements: Their Design, Construction and Maintenance.* (67) Sept.

Sanitation.

- Problems in Waste Disposal.* Henry A. Allen. (55) Aug.
 The Chlorine Cell Installation of the Montreal Water and Power Company.* F. H. Pitcher and James O. Meadows. (59) Sept.
 Some Characteristics of the Activated Sludge Process of Sewage Treatment. Almon L. Fales. (60) Sept.
 Requirements of Economical Heating Systems.* (101) Serial beginning Sept. 7.
 Advancing the Position of Furnace Heating.* A. C. Willard. (Paper read before National Warm Air Heating and Ventilating Assoc.) (101) Sept. 28.

Structural.

- Combined Stresses.* A. Lewis Jenkins. (55) Aug.
 Proposed Standard Methods for Measuring Concrete Work: Recommendations of Committee on Measuring Concrete Appointed by American Concrete Institute. (67) Sept.
 Boiler-House Design.* Herbert E. Birch. (9) Serial beginning Sept.
 Multi-Family versus Individual Houses.* Henry Atterbury Smith. (6) Sept.
 Sheet Metal Work on a City Residence.* (101) Sept. 14.
 Observations from Experience on Chimneys.* (101) Sept. 21.
 Critical Loads for Long Tapering Struts.* Arthur Morley. (11) Sept. 21.
 Mouton Dynamométrique de 60 Kilogrammes pour l'Essai par Choc des Barrettes Entaillées.* Guillery. (92) May.
 Das Versuchswesen in der Praxis des Eisen-und Eisenbetonbaues.* Fritz Hübner. (107) Serial beginning Oct. 6.

Topographical

- Perspective Sketching from Orthographic Views.* Arthur B. Babbitt. (72) Sept. 27.

Water Supply.

- Ultra Violet Rays; Their Advantages and Disadvantages in the Purification of Drinking Water.* R. R. Spencer. (59) June.
 Treatment of Public Water Supplies from Lake Michigan. Samuel A. Greeley. (59) June.
 The Quality of Water and Confirmatory Tests for *B. Coli*. Abel Wolman. (59) June.
 The Detroit Water Works. Theodore Alfred Leisen. (59) June.
 Some Tests on Motor-Driven Deep-Well Pumps. I. W. Fisk and P. S. Biegler. (59) June.
 Sterilization by Liquid Chlorine and Hypochlorite of Lime. M. S. Dutton. (59) June.
 Rusting of Pipe in Service. Harry Y. Carson. (59) June.
 Service Pipes.* F. N. Speller. (59) June.
 Some Costs of Maintenance of Motor-Driven Deep-Well Pumps.* Melvin L. Enger. (59) June.
 Public Utilities and Public Health. H. E. Barnard. (59) June.
 Flow Measurement in a Water Collecting Gallery by the Chemical Method.* D. H. Maxwell. (59) June.
 A Municipal Waterworks Constructed and Operated Solely for Industrial Service. Claude L. James. (59) June.
 Decarbonation and Removal of Iron and Manganese from Ground Waters at Lowell, Massachusetts.* F. A. Barbour. (59) June.
 Experience with a Submerged Pipe Line in the Puerto Barrios Water Works.* T. Howard Barnes. (59) June.
 Installing and Maintaining Water Service Connections in St. Paul. Garrett O. House. (60) Sept.

* Illustrated.

Water Supply—(Continued).

- Pumping Station Cost and Efficiency Records. Mark Wolff. (59) Sept.
 The Economy of Meters. C. L. Köhn. (59) Sept.
 The Discharge Integrator.* C. H. Pierce. (109) Sept.
 The Results of the Use of Meters in the Metropolitan Water District, Boston.* Samuel E. Killam. (28) Sept.
 The Service Charge—How Constituted. J. N. Chester. (59) Sept.
 Troubles in Constructing a 48-in. Submerged Main. F. W. Cappelen. (59) Sept.
 Some Experiences in Operating the St. Louis Mechanical Filtration Plant. (60) Sept.
 Some Experiences with a Trenching Machine. George W. Batchelder. (28) Sept.
 Rapid Sand Filtration. George A. Johnson. (28) Sept.
 Mechanical Filter Bottoms and Strainer Systems. Robert Spurr Weston. (28) Sept.
 Recent Progress and Tendencies in Municipal Water Supply in the United States. John W. Alvord. (59) Sept.
 Report of Committee of New England Water Works Assoc. on Service Pipes. (28) Sept.
 Method and Progress of Lining the Wilson Avenue Water Tunnel of the Chicago Water Works.* (60) Sept.
 Experiences with Universal Cast-Iron Pipe. John H. Walsh. (28) Sept.
 Recent Developments in Air Pump Design.* E. Jones. (Paper read before Institution of Engrs. and Shipbuilders in Scotland.) (11) Sept. 7.
 Surge Tanks.* (11) Sept. 14.
 A Flexible Hydro-Electric Plant.* Carl V. Johnson. (64) Sept. 25.
 Circulating Water for Ashley Street Station.* John Hunter. (64) Sept. 25.
 Water Supply in a National Guard Camp.* (101) Sept. 28.

Waterways.

- Halifax Ocean Terminals.* A. C. Brown. (5) Jan.-June.
 Taking Cross-Sections, Humboldt Jetties, California.* George F. Whittemore. (100) Sept.
 Der Basler Rheinhafen bei Kleinhüningen.* (107) Oct. 20.

* Illustrated.